Vol. XI MAR 3 1921 MARCH, 1921 No. 3

AMERICAN JOURNAL OF PUBLIC HEALTH

THE JOURNAL *of the* AMERICAN PUBLIC HEALTH ASSOCIATION

IN THIS ISSUE OF THE JOURNAL:

Health Centers
Model Health Code
Industrial Wastes
and Mothercraft Movement
With a Sketch of General Gorgas

FIFTIETH ANNUAL MEETING, A. P. H. A.
NOVEMBER 14-18, 1921, NEW YORK CITY

Published monthly on the 20th by the American Public Health Association at
124 W. Polk Street, Chicago, Ill.
ADDRESS EDITORIAL MATTER TO
169 MASSACHUSETTS AVE.
BOSTON, MASS.

Subscription Price, $4.00 per Year. Single Copies, 50 cents.
A. P. H. A. Membership, Including Subscription, $5.00 per year.

Entered as second class matter January 20, 1920, at the postoffice at Chicago, Illinois, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized February 20, 1920.

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American Journal of Public Health

Official Monthly Publication of the American Public Health Association

Publication office: 124 W. Polk Street, Chicago, Ill.
Editorial office: 169 Massachusetts Ave., Boston, Mass.

Subscription price, $4 per year. American Public Health Association membership, including subscription, $5 per year. Subscriptions and membership may be sent to the A. P. H. A., 169 Massachusetts Ave., Boston, Mass.

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INDUSTRIAL WASTES IN RELATION TO WATER SUPPLIES

WELLINGTON DONALDSON,
Staff of Fuller & McClintock, Engineers
New York City

Read before Sanitary Engineering Section, American Public Health Association at San Francisco, Cal., September 14, 1920.

Principal responsibility for preventing stream pollution by industrial wastes should be placed on the plants themselves. But municipalities should not depend upon out-of-date purification plants, but should utilize new methods. State health officers should have regulatory powers under standardized laws conforming to Federal practices.

INDUSTRIAL pollution of water like sewage pollution is an unfortunate accompaniment of civilization. It matters not if the defilement of streams and water supplies by trade wastes is unnecessary for the most part; it is the history of these things that nuisances and injuries are brought into existence before their significance is realized and before measures have begun to be applied. It is another case of locking the stable door too late.

It cannot be said that the problems of trade wastes are new to this country, although it is true that the building up of large urban populations and the remarkable quickening of our industrial life following the Great War, are bringing prominently into view the important relation of trade wastes to our streams and water supplies, an importance long realized in the older European countries. Already, we witness some of our most important rivers so grossly polluted with industrial waste as to be hopeless of reclamation for water supply purposes.

With few exceptions the large communities of this country derive their water supplies from surface sources such as rivers or lakes. Statistics available would indicate that not less than 40% of the entire population of the United States is supplied from surface sources. From this statement the importance of preserving the purity of the streams and lakes must be evident.

The effect of industrial waste on public water supplies is generally manifested in one or more of the following ways:

1. Disagreeable odors and tastes.
2. Foreign substances which make the water unsightly and unsuitable for use, or else interfere with the proper functioning of purification works.

3. Chemical substances in solution, which though not objectionable to sight or taste, may cause actual damage to water works structures, render the water less fit for domestic or industrial use, on account of hardness or other chemical properties, and may or may not be detrimental to health.

It is obvious that on account of the multitude of waste substances derived from industries the variety of effects on water supplies will be numerous. Only a few of those instances will now be cited where the effects have been generally noticed and are of wide-spread interest. It is not surprising to observe that these instances concern chiefly the wastes incident to the principal or basic industries of the country.

COAL MINE WASTES

From many sections of the coal mining regions reports have come of damage to water supplies by reason of the washings from collieries which blacken the stream and cause disagreeable effects when water supplies are taken from it. Speaking generally, however, pollution of this nature has not proven serious because the impurities consist mostly of suspended coal dust, easily removed by the sedimentation and filtration processes employed in modern purification works.

By far the most serious effects in connection with coal mining operations is that of acid wastes. It is a well-known fact that when coal measures are exposed to the atmosphere, the mine drainage water has a corrosive nature, due to the presence of free sulphuric acid and metallic sulphates derived from the sulphur in the coal. These phenomena occur in both the anthracite and bituminous regions, and have been noted in various parts of the world where coal is mined. Other sulphur-bearing minerals than coal give rise to the same effects.

The mining regions of Western Pennsylvania furnish a striking example of acid pollution, for many of the streams have become so strongly impregnated with acid waste as to be unsuitable for either domestic or industrial use. Smaller streams present the ochraceous appearance so typical of iron wastes. In the Pittsburgh district it is a familiar sight to note the coagulated appearance of the Monongahela River in pools above the locks as steamboats ply up and down, the coagulation being produced by acid waste. In this particular stream acid has been blamed for many thousand dollars' worth of damage to the structures of the Government dams and to shipping on the river. On water supplies drawn from this stream, the effects have not been so serious as might be imagined for the reason that water purification plants are prepared to neutralize the acid effects with lime or soda-ash, or both, and remove the accompanying iron by filtration before delivering water to the consumer. Water so treated is satisfactory in appearance and of good bacterial quality, but usually has a high degree of hardness which makes it less suitable for general domestic use and for steam-making purposes.

In the handling of acid water by water purification plants, the cost of treatment enters as an important factor. In the instance of one important city in Pennsylvania having a lime and soda softening plant, the acid condition of its supply has become so severe as to force the selection of another supply, on account of the excessive cost of treating the original supply.

In the Pittsburgh district it has been pointed out that acid wastes in the streams have not been entirely detrimental, for they serve to sterilize the considerable sewage pollution and thus have protected from water-borne diseases many of the communities taking their supply from the streams without filtration. Then, too, small amounts of acid wastes are sometimes helpful to rapid sand filtration plants, for after treatment with lime, the precipated iron takes the place of coagulant that would other-

wise have to be added for successful filtration.

Not all of the stream acidity in the Pittsburgh district, by any means, is due to mine drainage. The numerous tin plate mills, galvanizing works, etc., have all contributed heavily to the general acid condition. In other districts, plants manufacturing sulphuric acid have been blamed for the condition of streams. In the case of manufacturing plants, an improvement has been noticeable in recent years by the development of processes which yield a return on the recovered by-products, such as copperas.

At a few of the coal mines also, successful experiments have been carried out in treating the acid wastes, with a financial return from by-products. The great difficulty about the mining situation is that old and abandoned coal mine workings continue to yield acid drainage in undiminished amounts for years.

COAL DISTILLATION WASTES

Nuisances to water supplies from drainage of gas-house wastes have long been recognized, as is evidenced by numerous statutes governing the subject in the various states. In recent years, the vast increase of the industry of coal distillation, by producer gas plants and especially by-product coke works has added materially to the problems of water supplies by reason of this class of waste products. The wastes from coal distillation plants vary much in composition depending upon the nature of processes, and the degree to which primary products are worked up for the market. The complex group of aromatic substances is frequently designated as "creosote," but for the purposes of this paper it will be sufficient to refer to them as "phenols" (carbolic acid), because phenol and kindred substances, particularly the cresols, persist in the waste products and by reason of their appreciable solubility in water give rise to the greater offenses to public water supplies.

Phenol waste has been directly responsible for odor and taste in water supplies, but usually its effect has been indirect by reason of the facility with which phenols form substitution compounds with chlorine gas and calcium hypochlorite in general use for water sterilization in this country. Substitution compounds so formed have an odor and taste very much more intense than the original unchlorinated substances, which themselves might exist in water in high dilution without being noticed.

The phenomena of substitution compounds were called to the writer's attention in 1915, when investigating the causes of pronounced odors and tastes in the water supply of a large Southern city. In this instance there was no pollution by phenol waste of the supply itself, which is filtered and sterilized with hypochlorite. The treated water had no taste or odor and failed to give tests for residual or active chlorine, as drawn from the mains. Following the laying of two blocks of freshly dipped cast-iron main, an intensely disagreeable "medicinal" odor and taste, particularly on heating, were noted in the houses supplied by the new pipe, but at no other premises in the surrounding territory supplied with the same water. The cause was traced to the crude "dipping" method of the pipe foundry, whereby a higher proportion than usual of "creosote" or "dead oil" in the pipe dip, without opportunity to "weather," resulted in the phenols being dissolved out to combine with chlorine, forming the intensively aromatic *trichlor-phenol*. It took several weeks of persistent flushing of the new main to get rid of the taste and odor. The same phenomena of chlorine substitution were subsequently noted in a number of other water supplies known to receive phenol wastes from coal distillation.

That such substitution compounds occur in water supplies was recognized by the Water Department and Board of Health officials of Milwaukee in 1918, as clearly described by Superintendent H. P. Bohmann.* In this instance phenol

waste from the city gas works, a by-product coke works, and a munitions plant—the latter 13 miles distant from the intake—polluted the waters of Lake Michigan under certain wind conditions and gave rise to pronouncedly disagreeable tastes in the city, following chlorination. The intensity of taste was found to depend not upon the amount of chlorine used for sterilization, but upon the amount of phenols present in the water. Other cities along the Great Lakes have had similar experience without realizing the specific cause, the taste being attributed solely to the sterilizing agent or vaguely to the effect of chlorine on "organic matter." A number of cities in Wisconsin, Ohio, Indiana, Illinois, and Pennsylvania have had similar experiences to that of Milwaukee on account of phenol wastes.

Aside from the liability of taste and odor, the presence of phenols has another unfortunate effect on water supplies, namely, that of reducing or nullifying the efficiency of the chlorination process used as a safeguard against harmful bacteria. Numerous water purification works have discovered the inability to get satisfactory bacterial reduction except by using excessive doses of chlorine and accepting disagreeable taste in the supply.

The ordinary processes of water purification have not been successful in dealing with phenol wastes, but some recent experiments indicate the possibility of effecting a considerable removal before chlorination and thus reducing the probability of complaints from taste and the interference with chlorination noted above.

WOOD DISTILLATION WASTES

The wastes from the wood distillation industry have affected seriously a number of public water supplies. Most of the instances reported were from Pennsylvania and New York where destructive distillation of hard wood is carried out for obtaining charcoal, methanol, and acetate of lime, although some troubles of this kind have been reported from resinous wood distillation plants in the Southern states. The troublesome wastes are from the spent still liquors and sludges, all of which have the penetrating odor and taste peculiar to wood creosote. These complex products differ chemically from the coal distillation products, though classified also as phenols. Their effect on water supplies is due directly to the physical properties of the original substances which give to the water a "smoky" taste when present in sufficient quantities. Unlike coal phenols, the tastes are little affected by chlorination processes used in water purification. If substitution products are formed with chlorine they are not markedly more penetrating than the original substances. No method of treatment by water purification plants has been found which is effective in removing the objectionable tastes and odors caused by these substances, though aëration is helpful.

OIL WELL OPERATIONS

The accidental spilling of crude oils into water supplies while rendering the stream unsightly in some instances has not greatly affected public water supplies. Some troubles have been reported at the slow sand filtration plant at Pittsburgh due to paraffins in the water, which incrusted the sand grains and interfered with the normal operation of the filters.

By far the most serious effect of oil operation is due to the discharge of salt water into streams. Pollution of water supplies by salt water has been the subject of litigation in several states. The salt pollution affects principally the taste and palatability of water. The amount of chlorides found objectionable is very variable in different localities. The writer has in mind an instance in Pennsylvania where the limiting amount of chlorides is about 200 p. p. m. expressed as chlorine, and again another instance in the Middle West, where 400 p. p. m. is not seriously

*Engineering News-Record, Vol. 82, p. 181. (1919)

objected to. Some of the water supplies of Kansas and Oklahoma contain even higher amounts and are quite acceptable for general use.

In the two states named above, the problem of salt pollution is a very serious one. On account of the enormous oil development within recent years many of the streams have become so impregnated with salt as to be useless and some cities have been forced to seek other water supplies. In Oklahoma, particularly, not only the streams are affected, but the ground water as well, on account of the pollution of underground water by ineffectively plugged and abandoned oil wells. In addition to creating unpleasant taste, the presence of large amounts of salt in a water supply makes it less suitable for steam-making purposes and tends to aggravate "red water" troubles.

There is no practical remedy for salt water once introduced into public water supplies.

OIL REFINERY WASTES

Sludges and spent liquors from oil refineries have been a minor source of trouble in some water supplies, as for instance, a Missouri city reported within the last year. However, troubles from this source are not believed to be extensive.

Some of the Western States have had to deal recently with objectionable wastes, known as "feetings" due to washings from certain oil operations. These wastes have created disagreeable odors in several water supplies, abated by impounding the waste liquors and releasing during flood periods of the stream.

TANNERIES

The blackening of streams by tannery wastes is a familiar sight in those regions where the industry is profitable. The pollution occurs to such an extent in certain localities as to prevent the use of streams for public water supplies. Provided there is sufficient dilution the effects are not permanently noticeable and may be mitigated by ordinary processes of filtration, although they may entail additional expense in operating water purification plants by reason of increased alum dose to secure coagulation, and may affect the transparency or color of water supplies taken from those streams.

PAPER INDUSTRIES

The pollution of streams by paper mills and allied industries has been the subject of much litigation in many states, resulting in drastic measures against the discharge of pulp, sulphite, liquors and other waste matters.

OTHER INDUSTRIES

The list of industries polluting water supplies by their trade wastes is too lengthy to be treated except by passing reference. The wastes from textile plants, bleacheries, dyeing establishments and particularly the woolen mills have been a source of much trouble, especially in the textile centers in the East. The refuse from soap manufacturing plants, dairies and creameries, from sugar mills, and from saw-mills have all had their influence on public water supplies.

The building up of the new American industry of dyes and organic chemicals is bringing to light some additional problems, as instanced by the recent case of a New Jersey city which sought legal relief from pollution of its water supply by benzaldehyde (artificial oil of bitter almonds) from a chemical plant.

REMEDIAL ASPECTS

It can hardly be denied that the prosperity of a nation is fairly measured by its industrial development. It is obvious, therefore, that the proper solution of the problems of industrial pollution does not lie in the forbidding of industry, but in a sane regulation whereby industries may flourish without detriment to development of the resources of the country. It is proper that the greater responsibility of preventing stream pollution should be placed on the industrial plants themselves. There has been too much carelessness by manufacturers in allowing ob-

noxious wastes to enter streams, and too much disregard of the rights of others, the public particularly, in the use of streams. The manufacturer can often with little expense prevent the pollution of streams, and repeatedly it has been found that the unwilling adoption of processes for waste disposal has resulted in a clear profit to the manufacturer from the recovery of by-products. On the other hand, instances are not lacking where the necessities of public water supply have sometimes borne down rather heavily upon the industries, when remedies were at hand for offsetting the effects complained of. It must be admitted that water purification plants are very much stereotyped in design and fitted only for handling the older and better known problems of removing sewage effects, turbidity and color; but it would be unwise to conclude therefrom that the art of water purification has reached its final limitations.

In these matters it would seem that the "rule of reason" might often be put into effect, although a spirit of leniency in certain deserved instances ought not to be construed to cover willful cases of pollution, carried out in total disregard of the public interest. Regulating powers in the hands of the state health officers seem to offer the best solution of such cases, although there exists a remarkable lack of consistency in the various state laws governing such cases, with the result that one state exercising a prudent control over the pollution of its waters may find itself helpless to cure evils originating outside its jurisdiction, but having a controlling within its own boundaries. In one instance, at least, the enabling act of the state health body specifically exempts from jurisdiction certain classes of offenders having considerable share in the deterioration of the water supplies. To some, the remedy for diversity of state laws and the lack of uniformity of their application would lie in Federal or district regulation. However, it is hard to conceive of a united public sentiment, in the near future, supporting general regulation, and on the other hand, it is easy to foresee many difficulties in the way of applying such laws to the varied conditions in the several states, the prosperity of which frequently hinge in large measure upon this or that principal industry.

TO TEACH MOTHERCRAFT

In England the opinion has been officially expressed that the grade teachers are quite competent to teach Mothercraft, but in this country with ideas of specialization some colleges have begun the training of special teachers.

Here is a group of young women at the University of California, who are preparing themselves to be leaders in the new lines of work. The nurse instructor is demonstrating and each student has materials with which to follow the directions with a practical trial.

MOTHERCRAFT INSTRUCTION FOR SCHOOL GIRLS

MAY BLISS DICKINSON, R. N.,
Chairman, Mothercraft Committee,
Massachusetts Federation of Women's Clubs,
Boston, Mass.

Read be ore Sessions on Child Hygiene, American Public Health Association, at San Francisco, Cal., September 16, 1920.

Mothercraft, now introduced into twenty-five states and several foreign countries, is a very recent development in public health education. It seeks to utilize the maternal instinct of young girls and build on it a knowledge of simple hygiene and sanitation. The child carries this instruction to the home and the standard of home health is raised.

THE invitation extended by the American Public Health Association to present Mothercraft, at this meeting, was particularly gratifying to the Mothercraft Committee which I represent as advisory member of the departments of public health and child welfare of the General Federation of Women's Clubs and chairman in the Massachusetts State Federation of Women's Clubs. Our members saw in the recognition which your body has extended, evidence of the growth of this movement to the present national and international proportions. Our message has already been proclaimed at two biennial conventions of the National Federation of Women's Clubs. I need not tell you what a pleasure it is to have this opportunity to say something about Mothercraft to this national gathering of health workers.

It is because of the early appreciation of the great and universal appeal of Mothercraft on the part of organizations like this that a movement which started as a small local undertaking has, within four years, become established in many American states, in the Dominion of Canada, and is finding its way into many other countries.

I realize that before going on, our term, "The Mothercraft Movement," ought to be defined. It should not be confused with the Little Mothers' Movement, though in a way it is an outgrowth of that philanthropic work among the poor. The admirable system of teaching big sisters of the New York tenements to give the right care to their little brothers and sisters started something of inestimable value to all communities. This work long ago proved a great saving of babies' lives, especially in the critical summertime, and it pointed a way to a healthier, happier childhood. It might have been thought that only in congested slums was such a training necessary. Every physician and every health officer knows that the same ignorance is found in all classes of society. Many mothers themselves know it. Not long ago I saw a letter from a young woman who went overseas early in the war and married an Englishman. Writing back to her mother she said in effect: "Here I am, Mother, with three children and thousands of miles away from you, with no knowledge whatever of taking care of them. You spent thousands of dollars on my education and not one word was I ever taught about my duties as a future mother; although I find now that the very lives of my little ones depend upon my knowledge." The American mother who showed me this letter expressed the deepest regret that Mothercraft was not,

in her daughter's childhood, a part of the course in the expensive private schools to which she had sent her children.

A more fortunate family, though not so in material resources, was an Italian household whose members think that Mothercraft saved the life of the baby. The oldest daughter, twelve years old, who had had instruction in a Mothercraft class at the public school, took entire charge of the home, the mother and the little newcomer, except for the daily visits of the nurse. When the baby had a convulsion, little Carlina followed the instruction of the classroom giving immediate and correct care, and sent at once for the doctor, who said that probably she had saved the baby's life.

The specific character of the instruction in Mothercraft, which is applicable to the training of all girls in public and private schools, and after they have left school I should like to emphasize. The system is the outgrowth, as I have said, of the Little Mothers' Movement and of welfare work among young factory girls. Four years ago a graded course of twelve lessons in girls' health and the care of babies was prepared and was given with practical demonstrations before classes of girls of the seventh and eighth grades of several Massachusetts cities. This work was immediately successful and gained widespread attention throughout the country. The lessons were expanded into a text book, "Children Well and Happy." At the same time the State Federation of Women's Clubs, which had already done so much child welfare work, had become interested in this plan. A Mothercraft committee was formed and the importance of the work was held to be such that the eight district directors were given as associate workers in the Committee. For two years this Committee has followed the definite procedure of introducing Mothercraft into public and private schools and other groups, such as Girl Scouts, Camp Fire Girls, Americanization classes and playground associations.

The chief claim that can be specially made for the Mothercraft work which I am describing, is that it is precise and specific. All over the world the idea has been prevalent for some years past that girls should be properly prepared for motherhood; and sporadic efforts in this direction have been made in many places. As the work in Massachusetts gained publicity, letters of inquiry began to come in from every part of the map. In some cases the Mothercraft material was used to incorporate with other plans already started. In some schools the

PLATE I

Mothercraft utilizes the maternal instinct of young girls to interest them in hygiene and sanitation.—Copyright M. B. Dickinson.

scheme of instruction has been entirely rearranged to introduce the course in "Children Well and Happy." Mothercraft teaching has now been undertaken in 25 of the United States and it has been introduced into the Dominion of Canada under the auspices of the Victorian Order of Nurses, beginning at Winnipeg and the surrounding towns and extending into several provinces.

How this Mothercraft plan dovetails with the whole scheme of child welfare work is easily seen and will need but little exposition. As Dr. Truby King of Australia said: "Child welfare work is saving the lives of many babies and mothers, but it is not until we go back to the establishment of health in our girls of school age that we can ensure strong womanhood and better born babies." It

is precisely this problem with which Mothercraft deals.

The nature of the instruction that has been developed under this plan is here briefly indicated. Mothercraft should not be confused with sex hygiene or sex education. That form of instruction is left entirely to other agencies. Some educators do not believe that the mysteries of life should be taught to large groups of children; but we all agree that mothers should have special instructions in this direction so that they may teach their girls.

The course begins with an account of personal hygiene and the relation of a clean home to child life. This serves to create an interest in the girls' minds that leads them naturally into the subject of baby hygiene and the right care of the baby in the home. No reference is made to prenatal care. In the subsequent lessons the girls are given definite instructions with demonstrations, either with the Chase doll or the actual baby. They learn how to administer the first bath and each succeeding lesson touches upon important and familiar details of infant care through the first year.

It has been found that this study is easily introduced into the schools and elsewhere. The first step, as a rule, is to interest school officials. In some cases the use of the schoolroom has been granted after school hours until a place could be made for it in the regular school curriculum. School superintendents have very generally approved the plan. The question of who should give the instruction in Mothercraft is a vital one. In England, I note from a letter from the Senior Medical Officer, Ministry of Health, Whitehall, London, an opinion prevails there that the grade teacher should give the lessons. In this country it has been proposed that young college women receive instruction in this subject so as to prepare them to teach it. My personal feeling is, and it has been borne out by the success that we have had wherever this plan has been tried, that the school nurse is the logical person to present this subject. She has had the general training that enables her to speak with authority and to use the right terms. It is objected that some school systems are without a nurse. The answer is that the introduction of Mothercraft will hasten the day when the school nurse will be universal.

PLATE II

The Mothercraft girl can test the baby's milk to see if it is cold.—Copyright M. B. Dickinson.

What is the future of Mothercraft?

We have to recognize that it is, so to speak, in its infancy. The growth up to this time is far from being proportionate to the need, and we should like to appeal to any who are interested in this presentation to give thought to ways by which organizations with which they are familiar may coöperate with us. As for the participation of the women's and parent-teacher associations which have

been responsible for so much child welfare work, I think we can say positively that that is assured.

No topic seemed to excite more general interest at the recent biennial convention at Des Moines than Mothercraft. As for other organizations, the anti-tuberculosis associations have already shown keen appreciation of the value of the Mothercraft plan as it relates to the health of mothers and children, and indeed of the whole family life. In Kentucky the State Tuberculosis Association has distributed Mothercraft material among the entire personnel of public health nurses, these being responsible for applying it to local conditions. Much further work in this direction could surely be done, for in consideration of the many millions that are spent yearly for the care and cure of tuberculosis no effort should be neglected, especially if it is inexpensive, that looks toward elimination of the disease. The seeds of most of the tuberculosis, we are told, are sown in infancy. When a little girl of twelve takes home the message that not only must the baby be clean, but the windows be open, flies kept out of the house, the milk kept clean and cold, and order introduced generally, a valuable beginning has been made toward the conditions under which tuberculosis cannot thrive.

As for the governmental agencies by which Mothercraft may be made a helpful part of the public health educational movement, our principal contact at present is with the state and local departments of education, some of which have found that this study fits naturally into the work of the home economic department, others into the department of hygiene; and with the Red Cross workers who see in it a means of meeting their urban and rural problems.

I have been impressed sometimes with a sense that the quest of health ought not to need to be so strenuous. If we all were privileged to live aright in a glorious climate like that in which we are meeting, with its opportunities for being out of doors at all seasons of the year, how much of the teaching and preaching which we now undertake would be unnecessary? A world, however, of insanitary and congested homes, of ignorant parents, and of sickly babies, lies beyond the mountains and to it we must return after this convention, which to many of us has been of the nature of a marvelous holiday.

Since the above paper was read at San Francisco, another important agency for presentation of Mothercraft has been developed, through the preparation of a film entitled "Children Well and Happy." From this the illustrations of this article have been selected. This visual presentation, especially adapted to the requirements of groups of school girls, college girls, young mothers and Americanization classes, was prepared at Hollywood, under the personal supervision of Miss Dickinson. Through succession of beautiful pictures runs a story that is wholly charming, and in which the scientific and health lessons are clearly presented. The scenario, as originally written by Miss Dickinson, was adapted for the screen by Cecil G. Mumford, a well-known English literary man, who showed extraordinary imaginative capacity in bringing out the beautiful significance of Mothercraft. In the cast is William H. Crane, known to all playgoers, who, through his great interest in the movement and love of children, generously offered his services. The unusual photography of the film, including the prints, was due to the skill and interest of Max Dupont.

Appropriate music to fit each scene is being prepared by the Music Department of the Massachusetts State Federation of Women's Clubs, Mrs. Arthur H. Davison, Chairman, with the endorsement of the Music Department of the General Federation. R

LACTOSE BROTH FOR ISOLATING BACTERIUM COLI FROM WATER

ESTHER A. WAGNER,
Bacteriologist, Illinois State Water Survey, Urbana, Ill.
and W. F. MONFORT,
Consulting Chemist, St. Louis, Mo.

Read before Laboratory Section, American Public Health Association, at San Francisco, Cal., September 13, 1920.

These authors suggest simplification of the technic by reducing the lactose content by addition of gentian violet, also Pasteurization in place of autoclaving. The announced value of gentian violet for preliminary enrichment of colon cultures is sustained, with cleaner plates and readier identification of colonies. Gentian violet has also advantages in ensuring keeping qualities in the broth.

THE lactose broth prescribed by the committee of the American Public Health Association (1917) contains 0.3% beef extract, 0.5% peptone, and 1% lactose. It is adjusted to neutral reaction with phenolphthalein and sterilized in the autoclav at 15 pounds for 15 minutes. "Any type of fermentation tube may be used provided it holds at least four times as much medium as the amount of water to be tested." (The later directions of the committee (1920), issued since the completion of the work herein described, reduce the amount of lactose to 0.5%.)

The modifications suggested in this paper are: elimination of beef extract, reduction of the per cent of lactose, sterilization without autoclaving, and reduction of the volume of broth used in fermentation tests on 10 cc. portions of water tested.

Beef extract occasions certain difficulties in the preparation of neutral broth. It undergoes progressive hydrolysis with successive heatings. Anthony and Eckroth[1] found that beef extract adjusted to neutrality and thereafter subjected to sterilization in the autoclav was slightly hydrolyzed; with meat infusions the point at which no further acidity was produced was not reached even after prolonged autoclaving. Chamot and Sherwood[2] advocated the use of media of special composition, omitting the usual addition of beef extract and increasing the percentage of peptone. It was their conclusion that beef extract stimulated growth of *Bact. communis*, but not in proportion to the trouble and labor involved. Salter[3] showed that *Bact. communis* in peptone water (without sugars) reached the maximum rate of growth more quickly in concentrated peptone water; a 2% peptone solution appeared to be superior to broth with 0.3% beef extract and 0.5% peptone. Bronfenbrenner and Schlesinger[4] concluded that in lactose broth the amount of gas produced increased directly with the concentration of buffer.

Concerning lactose Theobald Smith[5] stated that a concentration of 1% glucose or lactose would be a decided detriment to *Bact. coli* and soon lead to its destruction. He advocated addition of a minimum essential concentration of sugar (glucose) of 0.1% to bouillon. Berman and Rettger[6] found that *Bact. coli* failed to attack peptone appreciably in the presence of utilizable sugars, and

that the organism was unable to utilize completely 0.5% in a period of four weeks, while 0.2% was entirely used up in three days. Burling and Levine[7] observed that *Bact. coli* dies off rapidly in a medium containing 1% of either lactose or glucose and considered it desirable that the concentration of lactose in preliminary enrichment media be reduced to 0.5%, which they considered sufficient for the purpose. This suggestion has been lately given official recognition.

Hydrolysis of sugar broths during sterilization was reviewed by Gorham[8], who cited the observations of Hiss[9], Norris and Pappenheimer[10], and Elser and Huntoon[11], emphasizing the importance of efficient sterilization on account of the difficulty in obtaining sugars free from spores. Mudge[12] found that the degree of hydrolysis of lactose caused by sterilizing, as determined by fermentation tests, increased with the period of heating under 15 pounds pressure. Hasseltine[13] confirmed this source of error and recommended separate autoclaving of bouillon in bulk with addition of lactose (20% solution in distilled water sterilized in an Arnold for an hour and one-half) to make a 1% solution.

The elimination of sporeformers, which occur in sugars quite commonly, is not of course assured by the latter method. There are furthermore commonly found in beef extract and in peptone very resistant sporeformers. Some of the common laboratory infections, as noted by Lawrence and Ford[14], survive 15 pounds pressure for 15 minutes and are destroyed at 20 to 22 pounds. Another method of attack is proposed in the following experiments, wherein the selective action of gentian violet is invoked.

Churchman[15] noted the bacteriostatic action of gentian violet, which resulted in more or less complete inhibition of Gram positive organisms. Krumwiede and Pratt[16] reported that several green dyes restrained the growth of Gram positive bacteria but had no effect upon the Gram negative group. Kligler[17] found the most marked selective effect manifested by the triphenyl methane dyes and noted that *Bact. aërogenes* possessed a higher resistance to these substances than *Bact. coli.* Hall and Ellefsen [18], [19] tested the use of gentian violet in various concentrations in lactose broth and recommended the use of 1 part in 20,000. They report some inhibition of *Bact. coli communis;* but there is a possibility that the use of 1% lactose in the broth was a factor in the apparent inhibition. The suggestion lies at hand that sterilization of sugar broths for the isolation of members of the colon-aërogenes group may be effected by addition of gentian violet to filtered broth, with or without beef extract, containing 0.5% or less of lactose, and the application of heat reduced to that of Pasteurization or such brief heating as is involved in removing air from fermentation tubes in which the broth is placed for use. With properly selected inverted tubes (of 4 mm. to 6 mm. inside diameter) this last heating requires not more than 15 minutes in the Arnold sterilizer.

Lactose broth of the usual concentration is so applied in practice that varying concentrations of the components are present in the usual dilutions with portions of water incubated in fermentation tubes. According to the Committee's directions broth for dilutions of 1 cc. or less is tubed in 10 cc. quantities, while that for 10 cc. portions of water is in 40 cc. quantities. This leads to the final concentrations shown in table 1.

TABLE 1.

Concentration of Components of Lactose Broth as Incubated in Fermentation Tubes.

	Broth as Prepared	10 cc. 1 cc.	40 cc. Broth 10 cc. Water
Beef extract	0.8	0.273	0.24 percent
Peptone	0.5	0.454	0.40 percent
Lactose	1.0	0.909	0.80 percent

If it were considered essential that the concentration of the components be constant throughout the series of dilutions tested, the content of the fermentation tubes as prepared for incubation of 1 cc.

portions or less might be made up to 12.5 cc. by adding sterile water; this might also be the procedure with inoculated broth tubes which receive but a loopful or a minute portion of a culture from an agar slant, or a broth of lower concentration might be used for portions of 1 cc. or less of water to be tested and for such inoculations.

If the suggestion of Smith be accepted, that 0.1% sugar is an essential minimum and 1% lactose is detrimental, the proper concentration lies within these limits. If the observations of Berman and Rettger are considered valid, 0.2% lactose requires approximately three days for its utilization while 0.5% of Burling and Levine is excessive. The quantities of peptone and beef extract necessary are those required for buffer action and stimulation of growth.

The reaction, adjusted to neutrality prior to autoclaving, is greatly modified by the alkalinity of natural waters tested; the pH values 6.6 to 7.4 rarely prevail in fermentation tubes as incubated.

0.3 PER CENT BEEF EXTRACT, 0.5 PER CENT PEPTONE, 0.2 PER CENT LACTOSE WITH 0.005 PER CENT GENTIAN VIOLET

Water from a well in Urbana, Ill., was put up in Durham tubes. The broths used were prepared by autoclaving the peptone-beef extract bouillon in bulk, to which was added dry lactose immediately before distributing it into the tubes, which were then heated for 15 minutes in an Arnold sterilizer. The concentrations used and the volume tubed were:

Standard broth containing 1% lactose.

A) 40 cc. broth.

B) 10 cc. broth.

C) 10 cc. broth with 0.005% gentian violet.

Broth containing 0.3% beef extract, 0.5% Difco peptone and 0.2% lactose.

D) 10 cc. broth.

E) 10 cc. broth with 0.005% gentian violet.

To each tube was added 10 cc. water serially throughout the entire range of broths to insure as nearly as possible uniformity of bacterial content in the portions planted. Twenty-five tubes of each volume and concentration were planted on four days, making a total of 100 tests on each of the series. Transfers to Endo plates were made after 48 hours, and characteristic colonies picked for confirmation of lactose fermentation and methyl red reaction. Inasmuch as the consensus of opinion (Darling[20]) is that only typical *Bact. coli* is to be regarded as indicative of fecal pollution, we have regarded these data—characteristic colonies on Endo's medium, fermentation of lactose broth and positive methyl red reaction—as essential, and have made ready recognition of colonies on Endo plates which yielded confirmation tests—the criteria of success.

The results shown in Table 2 indicate higher confirmations with added gentian violet than without: Standard 1% broth used in the approved way (A) yielded 89 tubes showing gas, characteristic colonies on 28 Endo plates, from which 23 were confirmed; (B) 90 tubes showing gas, 19 confirmations in lactose and 20 in methyl red broth; (C) 86 instances of gas formation, with 48 characteristic Endo plates, 47 confirmations in lactose and 48 methyl red positive reactions;

TABLE 2.

Comparison of 100 Tests on the Same Water with Broths of Varying Composition.

	Beef Extract 0.3 percent Difco Peptone 0.5 percent Lactose - - - 1.0 percent			0.3 percent 0.5 percent 0.2 percent	
	A	B	C*	D	E*
Broth	40 cc.	10 cc.	10 cc.	10 cc.	10 cc.
Water	10 cc.	10 cc.	10 cc.	10 cc.	10 cc.
Gas in 48 hours	89+11—	90+10—	86+14—	85+15—	79+21—
Characteristic Endo colonies	28+61—	25+65—	48+38—	16+69—	47+32—
Confirmations in Lactose broth	23+ 5—	19+ 6—	47+ 1—	14+ 2—	47+ 0—
Methyl red	23+ 5—	20+ 5—	48+ 0—	14+ 2—	47+ 0—

*With 1:20,000 gentian violet.

(D) 85 cases of gas formation, 16 well characterized Endo plates, with but 14 confirmations in lactose and methyl red reaction; and (E) 79 instances of gas formation, with 47 confirmations in lactose and methyl red reaction.

Any inhibition which may have been caused by the high concentration of gentian violet used is more than counterbalanced by the sparing of sugar and of nutrients by the dye.

STERILIZATION WITHOUT AUTOCLAVING

To determine the minimum concentration of gentian violet which would inhibit growth of Gram positive organisms in broth, especially those occurring in peptone and lactose, a broth containing 2% peptone and 0.2% lactose was prepared without sterilization and put up in 100 cc. lots with the addition of 1) 0.01 mgm., 2) 0.02 mgm., 3) 0.1 mgm., 4) 0.2 mgm., 5) 0.25 mgm., 6) 0.33 mgm., 7) 0.5 mgm., and 8) 1 mgm. gentian violet per 100 cc. These were plugged with cotton, Pasteurized (70 to 80° C. for 15 minutes) and then sealed with paraffin. Kept at room temperature, distinct growth and bubbles on the surface developed in the first three bottles within four days; after a week the fourth showed growth, and shortly thereafter the fifth became cloudy. The last three, Nos. 6 to 8 inclusive, remained clear and sterile. A concentration of 0.33 mgm. per 100 cc. (1 : 300,000) served to inhibit to such extent that Pasteurization replaced autoclaving in the preparation of lactose broth. With less concentrations of the dyestuff, represented by Nos. 1 to 5 inclusive, the color was discharged or taken up by growing organisms, which ultimately formed a heavy white growth such as is described by Gorham and by Lawrence and Ford.

2 PER CENT PEPTONE, 0.2 PER CENT LACTOSE, 0.001 PER CENT GENTIAN VIOLET

In a 2% peptone, 0.2% lactose broth with added gentian violet ranging from 1 : 10,000,000 to 1 : 100,000, corresponding to Nos. 1 to 8, a culture of *Bact. communis* (Parke, Davis) gave vigorous fermentation, although it repeatedly failed to ferment the standard 1% lactose broth.

In Table 3 are recorded representative results of tests upon water samples from various Illinois sources, using the standard 1% lactose broth (A) according to the directions of the committee of the American Public Health Association (1917); (B) with equal volumes of broth and water; (C) the 2% peptone, 0.2% lactose, with 1 : 100,000 gentian violet. In no case has the latter broth given fewer confirmations than the 1% broth however used. The experimental broth had a pH value of 7 to 7.4 before addition of gentian violet. Inhibition of gas formers other than of the colon group was not always complete: in two instances gas formation in gentian violet broth was not followed by characteristic Endo colonies.

TABLE 3.

Comparison of Results with Various Concentrations of Components in Preliminary Enrichment Broths. (Volume of water planted in each case 10 cc.)

Concentration of Components in Fermentation Tubes.			
Beef extract.....	0.24	0.15	0.0 percent
Difco peptone...	0.40	0.25	2.0 percent
Lactose	0.80	0.50	0.1 percent
Gentian violet...	0.00	0.00	0.0005 percent
No. 1.....	3 in 3	2 in 3	3 in 3
No. 2.....	2 in 3	1 in 3	1 in 3
No. 3.....	1 in 3	3 in 3	3 in 3
No. 4.....	1 in 3	2 in 3	1 in 4
No. 5.....	2 in 3	2 in 3	2 in 3
No. 6.....	2 in 3	2 in 3	1 in 3
No. 7.....	1 in 3	2 in 3	2 in 3
No. 8.....	1 in 3	2 in 3	2 in 3
No. 9.....	0 in 3	1 in 3	0 in 3
No. 10.....	1 in 3	1 in 3	3 in 3
No. 11.....	1 in 3	1 in 3	2 in 3
Gas formed in 48 hours	25	32	34
Lactose fermented 15		19	21
Methyl red positive		19	20
Methyl red negative		0	2

DISCUSSION OF RESULTS

The advantages of gentian violet in lactose broth for preliminary enrichment of colon cultures set forth by Hall and Ellefsen are sustained by our experiments: there is some inhibition of non-colon gasformers, which conserves the available lactose for its intended use, and leads to cleaner Endo plates, with much

more ready recognition of characteristic colonies. Its use in lactose broth, permitting the elimination of the autoclav and the resulting hydrolysis of the sugar, seems to afford a means of securing a broth of good keeping quality, free from spores. The amount we have used in practice is three times that which seems necessary to prevent growth of intrusive forms in Pasteurized broth.

How serious may be the inhibition of *Bact. coli* by the amount of gentian violet used is not yet determined; but the comparative results above presented indicate a net increase in the number of confirmations of lactose-fermenting, methyl red positive, non-sporeforming bacilli of the group over that discovered by the use of the standard procedure with the standard broth. The number of confirmations is slightly greater than when 1% lactose is used with an equal volume of sample, a procedure which gives a lactose concentration in the diluted content of the fermentation tubes almost equal to that which will occur when 40 cc. of a 0.5% lactose broth is used according to the old prescription for 10 cc. portions.

We have purposely reduced the concentration of lactose to the minimum: it may prove that 0.1% is insufficient for the growth of some organisms of the colon group. Of this we have encountered no instance as yet. Thus far it appears that this very small per cent of lactose with a proper amount of peptone is sufficient to yield perceptible volumes of gas in Smith or Durham tubes. We have used a large amount of peptone to shorten the lag period, in the hope of ultimately shortening the period of incubation of the preliminary enrichment culture to 24 hours, a procedure recommended by Burton and Rettger[21] to preclude development of gas by *Bact. cloacæ*.

Our results show no advantage in adhering to the use of four times as much medium as the volume of water to be tested, whether 1% lactose or 0.5% lactose is used; while the use of gentian violet with either 1% or 0.2% lactose gives apparently a much more sensitive medium.

SUMMARY

Preparation of lactose broth for preliminary enrichment in water may be simplified by reducing the lactose content to 0.2%, with addition of gentian violet (0.001 to 0.00033%) and Pasteurization in lieu of autoclaving, by which procedure hydrolysis of the sugar is obviated.

Beef extract may be eliminated if sufficient peptone be substituted.

A broth containing 2% peptone, 0.2% lactose and 0.001% gentian violet, when used with an equal volume of water, gives results superior to those obtained by using the standard 1% or 0.5% lactose broth according to the prescription of "four times as much medium as the amount of water to be tested."

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THE HOSPITAL BETTERMENT MOVEMENT IN CALIFORNIA

W. E. MUSGRAVE, M.D.,
Director of Hospitals,
University of California Medical School and Hospitals,
San Francisco, Cal.

Read before Public Health Administration Section, American Public Health Association, at San Francisco, Cal., September 13, 1920.

Hospitals have not progressed as rapidly as other branches of medicine and many do not meet even minimum requirements. In California the Public Health League seeks to better this condition. Its survey shows that faults exist in location, fitness for purpose, organization and financing. The writer believes better hospitals to be the greatest health need of the day.

INTEREST in better public health, better medicine and better hospitals now constitutes a progressive, nation-wide movement, made up of many interests, including physicians, public health officials, educators and the general public. Organized effort is of many varieties, including scientific, educational, commercial and political.

Out of the discussion, certain fundamental facts, definitions and ideas are crystallizing. The most important of these is the fact that health, interpreted in its broader sense, is a public utility, a most important public utility; its quality depending as much upon successful organization and management as depends the quality of any other public utility upon similar methods. It is recognition of this principle that is leading insurance companies and industrial plants to appropriate constantly increasing sums for medical and public health departments as investments. Governments are incorporating it into laws, accident laws, medical aid acts, and public health measures, some of which are sound, some indifferent and others dangerous. They are mostly leading toward socialization of medicine and public health and therefore are matters of vital interest and concern to physicians and hospitals, not only as to the advisability of socialization under any conditions, but as to leadership in organization and management. As the movement is now developing, its policies, management and control are passing more and more into the hands of governments, commercial and lay organizations, and out of the hands of physicians.

It would seem rational to consider that

permanent progress in health is as dependent upon trained medical leadership as banking progress is dependent upon bankers for leaders, the courts upon lawyers or the farms upon farmers. Actually, medical leadership is not the dominating type at present and does not appear to be gaining as rapidly as the unfolding of the situation requires. Medical and health education is being improved and medical activities are expanding more and more into collateral lines. Full-time educated health officers are in demand and health laws are being strengthened. Nursing is becoming a many-specialty profession, turning out through its good schools trained technical assistants to the physicians of curative and preventive medicine. The practice of both therapeutics and prevention is broadening its scope to include mental and social ills. Hospitals and other agencies are being improved, the variety of public services amplified and strengthened.

Medical economics, or the business of medicine, is beginning to attract well-trained physicians, whose work is being strengthened by organized interest in this until recently undeveloped specialty. Of these organizations, the League for the Conservation of Public Health of California is the best example. This League, initiated and carried to success by medical and public health men and women of California, fills as no other organization has done one of the most important, and surely the most neglected field, in a sound health program. Its policies and organization are rapidly extending into other states, and the movement already has the nucleus of a national institution.

In addition to its numerous other activities, the League, through its Section on the Advancement of Medical Education and Science, assumes leadership in the Better Hospital Movement in California.

HOSPITAL STANDARDIZATION

Although the oldest of all medical institutions, hospitals have not progressed as rapidly as other branches of medicine and a considerable percentage of them do not meet the minimum requirements for good service. During recent years there has been a growing recognition of this fact and an ever increasing demand for improvement, out of which have developed a number of national, state and local organizations dealing with the subject. These include the American Medical Association's Section on Medical Education and Hospitals; the American College of Surgeons; the American Hospital Association, and some twelve other national bodies.

In order to secure coöperation and concerted action between these organizations interested in various phases of the subject, there has been created a Council on Hospital Service, made up of delegates from the important associations.

THE MOVEMENT IN CALIFORNIA

The League for the Conservation of Public Health of California early adopted hospital improvement and service as one of its major activities and is diligently attacking the problem under a policy which contemplates:

(a) The establishment and maintenance of the closest possible coöperation with all other national, state and local organizations interested in the problem as a whole or in any phase of it.

(b) A survey of the hospitals of California, the survey to be made by personal examination in conference with local hospital authorities, and to include every phase of hospital plant, organization, finances and activities.

(c) The establishment and maintenance of a hospital survey bureau, planned to help local hospitals with any problem, whether of construction, alteration, personnel organization or operation as a whole or of any department.

(d) The establishment and maintenance of a complete index record of all hospitals, to include not only the original survey, but all additional records and correspondence, and to make these rec-

ords of assistance to other organizations entitled to them.

(e) The bringing together as institutional members of the League all hospitals of sufficient importance and honesty of purpose as to justify efforts in their behalf; and the development through this organization of a constantly broadening conception of the duties and privileges of hospitals and their influence for good in community life.

This program has been in operation for about a year and the results have been surprisingly gratifying. Hospitals everywhere have welcomed the Committee and calls for further conferences have been elicited from most of the institutions. In fact, requests for conferences and advice from all parts of the state have grown so numerous that the Committee has been unable to answer all of them.

As a first step in its work, the League undertook to establish coöperative relations with other agencies interested in better hospitals, better medicine and better public health. Such coöperation was not difficult to secure. A number of important bodies have delegated to the League this function of their California program. The Section on the Advancement of Medical Education and Science, either through the dual function of one or another of its members, by delegation of function or by coöperative understanding, is working in harmony with the two university medical schools and hospital departments, the State Medical Society, the constituted health bodies of the state, and the Council on Medical Education and Hospitals of the American Medical Association.

About 450 institutions in the State are listed as hospitals. About one-third of these are practically expanded physicians' offices or are modified residences with a few beds, and hardly come within the scope of public utilities.

About 100 hospitals have been visited by the Committee, some of them several times. The rest will be visited during the coming year. The hospitals are of every conceivable class, in physical plant, policies, finances, organization and management. Some of them are complete enough to meet the demands of modern medicine in a creditable manner. More are incomplete in many respects, and some are not a particular credit to the physicians or communities in which they are located. Practically all of them want to be better, and in only two places was the Committee met with anything but a spirit of coöperation and a desire to do better work.

Early in its work the Committee found it necessary to have an examination outline. A survey form was worked out covering all phases of a complete general hospital for all intramural and extramural activities, including contact with other organizations interested in better health. This form has been printed and is in constant use.

It also was found necessary to have a working definition of what constitutes an acceptable hospital. In discussing this subject in a former article it was stated that:

"The minimum requirements for a modern hospital are that it shall be located, constructed, equipped, organized, financed and personneled to supply all the facilities and render all the complex services required by modern medicine, including physical, social and mental ills; and at the same time to furnish the facilities for training new workers in all the special fields covered by its activities.

"The modern hospital is a great public utility, the combined school and workshop of modern medicine; a community health center in all that the name implies.

"As a workshop, it uses the most precious material, employs the greatest variety of implements; and calls for the services of master craftsmen of many specialties. The hazards are great; every day is 24 hours long and service must be as free from error as possible.

"Love of service—practical everyday idealism—must be the constant watchword in every hospital, and dividends paid in soul satisfaction must be prized as of great wealth."

The committee has seen some splendid hospitals, many that are fairly good, some that are indifferent, and a few that ought not to be allowed to exist. We found many situations that were discouraging, but optimism has been sustained by an all but universal interest and desire for progress by hospital authorities everywhere.

The problems and shortcomings are infinite in variety. They include mistakes in location, construction, financing, organization, management, operation and too frequently in conception and understanding of duties and responsibilities. It is not possible in the time allotted to this paper to do more than sketch a few of the most serious difficulties:

Staff Organization—A loosely selected staff, holding infrequent meetings, constitutes a most unsatisfactory and dangerous situation in many hospitals. Frequently these so-called "open staff" hospitals are in reality "hotels for the sick" where both the physician and the patient are guests, with no interest, responsibility or concern in the success or failure of the institution. Hospital staff members should be selected with care, appointed with dignity and treated as responsible officers. Good results demand mutual interest, responsibility and team work between members of the staff, as well as between the staff and the management. There must be mutual understanding that records will be kept, unnecessary surgery avoided, accidents and other hazards reduced to a minimum; X-ray and other diagnostic methods used to their greatest advantage; nurses better instructed; idealism and education fostered in every possible way; and the sympathetic care of the sick insured.

Organization and Management.—Analysis of our survey shows great variety in organization and management, some of it splendid, but in quite a large percentage of hospitals the organization is faulty and the management sometimes in the hands of persons not sufficiently trained or experienced to carry on the work as it should be. There is no reason why the basic principles of good business organization should not be applied to hospitals. These consist in a board of directors, which should not exceed nine or eleven in number, and an administrative officer-manager, director or what not—who is the mouthpiece of the directors in all matters. He should be entirely responsible to the board for every phase of management, including the entire personnel. Boards of directors should concern themselves with questions of policy and consideration of such other matters as are brought to their attention by the executive. Large boards, with numerous overlapping committees engaged in managerial matters, should be avoided.

Did time permit, it would be interesting to discuss finances, records, clinics, contact with other organizations; organization and management of X-ray laboratory and other public utility departments; dietetics; laundry; purchasing; teaching functions; nursing; and many other questions of great importance, and upon which the Committee's statistics are enlightening.

In conclusion, I would like to repeat that the hospital improvement movement has not kept pace with the advances in other branches of medicine and public health. It started late and must be speeded up or medical and health progress will slow down. Hospitals must be better located, better designed, better financed, better organized and better managed, with a broader educational and public service vision. This is by far the most important question before the medical and public health professions, and there is no more important question before the general public.

SYMPOSIUM ON THE HEALTH CENTER
I. THE HISTORICAL DEVELOPMENT

THE health center movement in this country is now about ten years old. The term "health center" had been used in England before that time but was applied only to infant welfare stations. In its early development in this country the health center idea evolved from the dispensary. It marked a distinct advance in public health work in that it applied the dispensary idea to a population group. In other words, instead of caring only for those who came for treatment, it reached out into a definite area and gave intensive health service to all those whom its resources permitted it to handle. This service included preventive, as well as curative medicine, and was taken to the homes of the people.

This idea of giving health to a definite population unit instead of making the people come after it, was first applied by Dr. W. C. White in Pittsburgh a little more than a decade ago. The scheme underwent various vicissitudes, however, and lasted only six months. A contemporaneous plan was attempted in Milwaukee, where child welfare work was instituted in a definite district by Mr. Wilbur C. Phillips. This project was upset by a change in political administration, but later (1917) Mr. Phillips developed a similar plan in the Cincinnati Social Unit. In 1913 the New York Milk Committee established its Health Center in the Syrian district in lower west Manhattan. Two years later Dr. S. S. Goldwater, Health Officer of New York initiated a comprehensive plan for a health center on lower east Manhattan, and some time after Health Unit No. 2 was established in Queens.

The Department of Health of Buffalo inaugurated health work in July, 1914, which developed into health centers soon after. In 1915 Cleveland started health center work in a district of 100,000. About the same time Philadelphia carried on infant welfare work through health centers. In Boston, the Maverick Dispensary performed health center work, though it did not denominate itself as such.

By the year 1917, it is estimated that there were about a dozen health centers in this country. A notable fact is that practically all of these were in the large cities. One exception was Norwood, Massachusetts, a town of about 12,000, which maintained a health center as part of its civic center. The real growth of the health center movement began in 1919. In New York state a number of communities established buildings where clinical services were offered, generally under the auspices of the local health department. The attempt to serve special population groups was not always adhered to, however, and now the term "health center" began to mean a headquarters from which public health clinical work was carried on.

In September, 1919, the American Red Cross, which had previously announced that the central feature of its peace time program was to be in the field of public health, issued a pamphlet entitled, "Health Centers, A Field for Red Cross Activity." In this pamphlet the health center was described as the physical headquarters of the coördinated health work of the community. At the end of the year 1919, 49 communities had health centers and 28 more were proposed. Seven communities had more than one health center, such as Cleveland with seven, Philadelphia with eight, Buffalo with five. The total number of health centers was 72. Instead of being entirely in the large cities, they were in places of all sizes, though particularly in communities of 10,000 to 25,000 population and in cities of more than 100,000 inhabitants.

The expansion of the health center movement has been most marked during

the year 1920. The term has become popular and much has been written on the subject. The American Red Cross recently prepared a bibliography on health centers and in it listed about 100 articles. Of these 50 appeared during 1920. In September, 1920, a pamphlet entitled "The American Red Cross Health Center" was issued by that organization. This type of health center is largely an educational and informational institution designed to meet with the most practical devices those public health functions which are too often lacking in a community. This pamphlet was reviewed in the December, 1920, issue of the JOURNAL.

On December 31, 1920 there were 385 actual health centers in operation in various parts of the United States. The Red Cross was concerned in the administration of all but 60 of these. In one year, therefore, the number has increased five fold. The modern conception of the health center is that it is an institution from which health influences radiate, a place where people may come to learn how to keep well, the physical expression of creative health effort. Notable examples of present health centers are New Haven, Connecticut; Alameda County, Cal.; Green Bay, Wis., and Knoxville, Tenn. As a practical method of selling health, the development of health centers is the next step in modern preventive medicine.

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The American Red Cross Health Center (A. R. C. 1012) and A Health Center Bibliography, American Red Cross, Washington, D. C.

(J. A. T.)

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Dental Stigmata in the Diagnosis of Obscure Congenital Lues. — Many children from the ages of six years to the age of puberty, come to the clinic with obscure symptoms which are hard to account for. It seems that typical dental stigmata have not been given the attention they deserve as diagnostic points. The classical Hutchinson tooth is by no means the only form of characteristic tooth in congenital lues. In addition to it there have been many dental abnormalities associated. Cavallaro of Florence, Italy, in 1908-09, described horizontal grooves on the teeth, dental infantilism, cup-shaped erosions on deciduous molars, and cuspal atrophy of the first permanent molars as being significant, diagnostically. In 1917, Roberts, of New York, added to Cavallaro's list, the abnormal spacing of the upper central incisors of the second set, which incisors are somewhat long and cylindrical. In the same year Sabourand of Paris asserted that a mamillary eminence or accessory cusp on the lingual side of the first upper permanent molar is even alone sufficient guarantee of the existence of hereditary syphilis. While it is true that these stigmata occur in children who are apparently healthy, nevertheless, in every instance their presence is at least suggestive of congenital lues.—William Henry Donnelly, M. D., *Long Island Med. Jour.*, XIV—10, Oct., 1920. (*A. N. T.*)

SYMPOSIUM ON THE HEALTH CENTER
II. WHAT NEW YORK STATE HAS DONE IN HEALTH CENTERS

B. R. Rickards,

Director, Division of Public Health Education,
New York State Health Department,
Albany, N. Y.

PROBABLY the first step toward the creation of health centers in New York state was that taken by the city of Buffalo in March, 1916, when five district health centers were established. In the summer of 1918 a health center was organized in Oswego on the initiative of Dr. E. J. Marsh, health officer, Dr. C. R. Hervey, sanitary supervisor of the district in which that city is located, and Dr. Chas. C. Duryee of the State Department of Health. The wisdom and value of this step could have had no greater demonstration than that which was given a few months later when the influenza epidemic struck that city. Probably no other municipality of its size in the state suffered as severely from the infection, for it is estimated that at the height of the outbreak more than one-half the population of about 25,000 were sick with the disease. Since nearly 50 percent of the physicians were in military service or incapacitated for active work the situation was serious, but with the Health Center organized and functioning, emergency measures were immediately put into action. Within a few hours day and night telephone and ambulance service was established, medicines and other supplies were furnished, and medical and nursing services supplied by the N. Y. State Department of Health, the U. S. Army and U. S. Public Health Service, and all were made instantly available through the Health Center as a headquarters. Thus, through the application of system and coördinated effort made possible by the centralized facilities and equipment of the Health Center, adequate relief was obtained which would have been impossible under any other method.

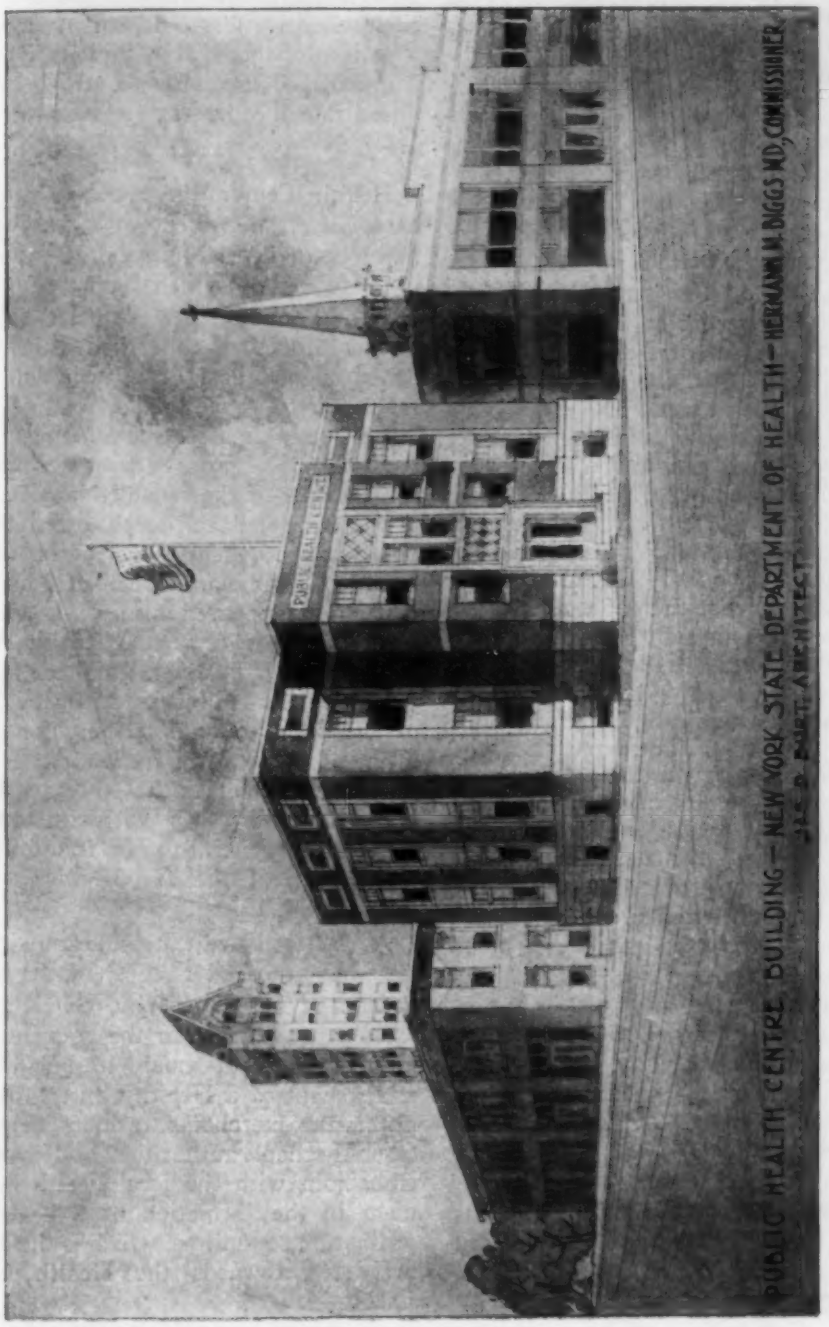
Subsequent to and perhaps largely as a result of the need for coördination of health activities indicated by the epidemic, health centers were established in Binghamton, Dunkirk, Schenectady and other municipalities, the object in each case being to bring under one roof all of the various health activities, thus saving the time and energy of the health officials as well as materially reducing the overhead expense of each agency.

Following the establishment of health centers in the communities mentioned, similar centers have been organized in 30 or more communities in the state under either municipal or Red Cross supervision. With one exception these are in cities or towns of more than 5,000 population. While undoubtedly of some advantage to nearby country districts, they have had comparatively little effect on the rural health problem of the state.

Beginning at the time of the influenza epidemic there has been a steady demand from some of the smaller communities of the state for aid in securing medical service. Some of the calls have been from places where a physician was already located but where through illness, age, or other causes it was impossible for him to care adequately for all those who needed his services. Other calls have come from communities absolutely without medical service except such as can be obtained occasionally from distant neighboring towns in good weather when the roads are open. In cold weather when the roads are closed it is often impossible to obtain the services of a

physician even for very serious cases. By means of advertisements in medical journals and news notes in the department's publications it has been possible to aid approximately half of the 82 communities requesting medical service in securing a resident physician.

That medical service in the rural com-



munities of New York state is tending to decrease rather than increase is indicated by a survey made of a number of counties with large rural populations. In these sections it has been shown that the number of physicians is actually growing less and that the average age of those in active practice is increasing, those in practice more than 25 years predominating.

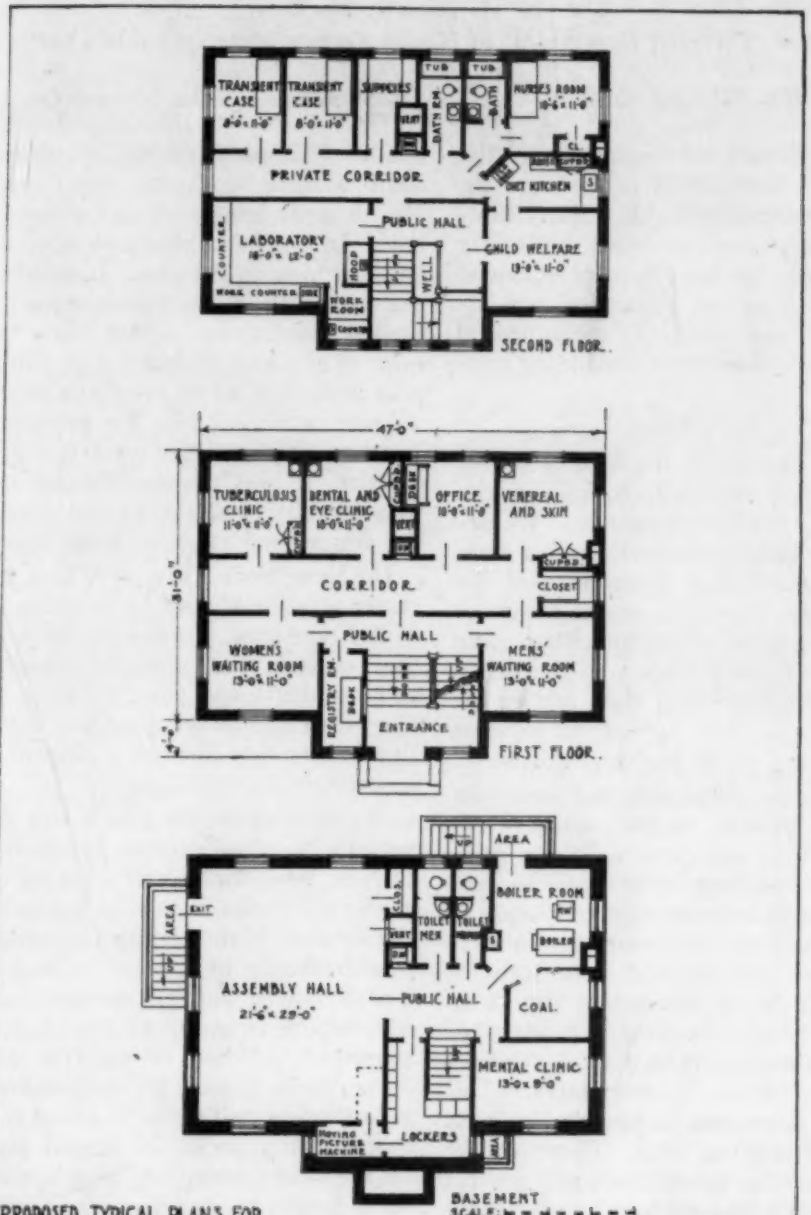
For the purpose of providing a means by which the same laboratory and other diagnostic facilities, together with hospital and expert consultation service, as is found in the larger cities, might be made available to the rural sections a health center bill was carefully prepared by the Public Health Council and introduced into the 1920 Legislature by Mr. Sage, chairman of the Senate Finance committee, and Mr. Machold, chairman of the Ways and Means committee of the Assembly. Briefly outlined, the bill provided that the supervisors of any county with the approval of the state commisioner of health should have the power to establish such county or part thereof exclusive of the cities therein as a health district which would be under the jurisdiction of a health officer, existing health officers in the district automatically becoming deputy health officers. The supervisors of such county were given the power to establish a health center in the district and to furnish laboratories, hospital facilities and expert consultation and clinic service. It was especially provided that patients sent to the health center should remain under the general care and oversight of their attending physicians. The bill was permissive and not mandatory in any of its details and also provided for the adoption independently of any one or more parts of the services mentioned. One-half of the cost and equipment of each of such health centers was to be met by the state provided that such sums should not exceed $750 per bed and the number of beds should not be greater than one for each 500 of population. Free patients were provided for.

The Health Center bill failed of passage in the 1920 Legislature partly on account of its being introduced too late in the session for it to receive adequate consideration. It achieved, however, an important object, namely, the arousing of interest in the subject and a fairly comprehensive discussion of its features.

It is probable that a similar bill with a number of amendments will be introduced into the present Legislature.

Health Centers in New York state have been the subject of a number of news notes in the JOURNAL at different times, some of which have been illustrated. So far as the State Department of Health itself is concerned, it has published a good deal of information with reference to the establishment of local centers, and in its issue of the *Health News* for February, 1919, it devoted the greater part of the space to Health Centers, giving half a dozen different articles, one of them a discussion of the Health Center plan of Philadelphia. In that issue appeared also a sketch and floor plans of a typical health center building by J. D. Burt, architect for the department. These should be of value to any who are undertaking the establishment of such an institution. Other illustrations of Health Centers actually established, together with information concerning them, are to be found in several issues of the *Health News* since February, 1919.

As part of its educational campaign the state has prepared a poster on the coördination of health activities, which indicates in graphic form the agencies in a municipality that should lead in the establishment of a Health Center. In this physicians, merchants, farmers, manufacturers, school authorities and women's clubs join with the local health department in the formation of a health coördination committee, which is the logical first step towards the Health Center itself.



PROPOSED TYPICAL PLANS FOR PUBLIC HEALTH CENTRE BUILDING—NEW YORK STATE DEPARTMENT OF HEALTH—

SCALE: 1/8 — 1/4 — 1/8 — 1/2

HERMANN M. BIGGS, M.D., COMMISSIONER.

SYMPOSIUM ON THE HEALTH CENTER
III. PRESENT STATUS OF THE HEALTH CENTER

WALTER H. BROWN, M. D.
Associate Director, Department of Health Service, American Red Cross, Washington, D. C.

Read before Sociological Section, American Public Health Association, at San Francisco, Cal., September 13, 1920.

THE proper development of the health center idea is the next big step in public health. Many leading sociologists are convinced that in the health center, we have a piece of social machinery of great value for our attack upon the complex socio-medical problems which are now demanding solution.

HISTORICAL

A brief review of the history of the health center idea will form a useful background for our discussion. We are not particularly interested, at this time, in the chronological appearance of the various ideas that have grown up under the general name of health center. We shall devote our attention to the origin and evolution of these ideas and to the possibilities of their application to some of our larger public health problems.

The health center idea has been conceived by public health workers in response to a universal need for some method of securing the practical application of scientific knowledge of disease to individual cases. It is more than a mere coïncidence that we find some form of this social device developing almost simultaneously in England, France, Belgium, Wales, Australia, Canada, Cuba—as well as in our own country. This can only mean that we are dealing with an idea of unusual value. Therefore, we should examine it with care and attempt to evaluate it and guide it into the channels of greatest usefulness.

A brief examination of the earlier forms assumed by the health center in America will be of interest. Davis states that the health center idea first took organized form in Milwaukee, where Wilbur C. Phillips attempted to make the child welfare work of the Board of Health apply intensively to a definite district. In Cincinnati, the anti-tuberculosis workers took up the idea. In addition to the effort to do intensive work in a limited district, was added home visitation. The Child Federation of Philadelphia utilized it as an approach to infant welfare work. While the primary object here was intensive work in a limited district, it was approached by means of a neighborhood survey and developed the educational value of home visiting.

In New York City, the first health center was established by the New York Milk Committee. Here again the work of the center was confined chiefly to children, but a significant addition to the idea was made by the development of active coöperation through a neighborhood association.

We now approach a new line of development. In Buffalo—Fronczak, and in New York, Goldwater used the health center as a means for the extension of the services of the Health Department to neighborhoods in a more intimate way. To all intents and purposes, these centers became branches of the Health Departments. When as was the case in New York, it includes coöperation and coördination with the voluntary social and health agencies we have a signpost on the road pointing the way in which at some future day, we may secure adequate health service for 100% of our people.

One more primary aspect of the health center idea remains to be described. I refer to the curative aspect. This angle of approach is illustrated by the Maverick Dispensary of Boston. For years,

it was a small clinic treating general diseases. By an expansion of its activities and the coördination of local health agencies, it has furnished an excellent example of the possibilities of official and voluntary agencies, coöperating in a curative and preventive program.

THE HEALTH CENTER ABROAD

A brief reference to what has been happening abroad will complete our picture. In Belgium and France, we recognize the same idea—under the name of "Alliance for Social Hygiene." Here the dominant note has been coördination of existing agencies.

In England and Wales plans for establishment of health centers has been the outgrowth of the type of organization of medical and public health practice. The health center is made the basis for all medical and allied services in the country. At present they are functioning as child welfare centers.

In Canada we have examples of health centers at Toronto where they are largely used by the public health nurses and at Halifax where a broad program of health work has been organized about such a center.

This completes an outline of some typical examples of the origin and development of the health center idea in various parts of the world. They represent a great variety of functions and numerous types of administration. We find their common objective to be the seeking for some device by which to transmit the discoveries of scientific medicine to all of the population.

The above selections have been made with a view to illustrating the important features which have marked the evolution of the first stages of health centers. These features may be classified as follows:

1. Application of some form of health service to limited population unit.
2. Coördination of the official and voluntary health agencies working in a specified area.
3. Provision for modern medical treatment.

All of the health centers of which we have any information, are characterized by one or more of these features in some form. Sufficient experience has now been accumulated, to be of real value in guiding us in the next stages of development. From it, we should be able to build up a conception of the health center which will be of general application in health work.

DISTRIBUTION OF HEALTH CENTERS

It would be of great value to have a complete study of all the health centers in the United States, with a tabulation of their functions, and type of administration. The Red Cross Health Service Department is engaged in such a study but unfortunately it is not yet complete enough for presentation.

An article by Tobey, in Modern Medicine on January 1, 1920, enumerates 72 health centers in 49 communities and 33 more in course of establishment. He shows that 3% of the cities between 10,000—25,000 population have health centers, while 25% of the cities over 100,000 are so provided. Since the appearance of this article numerous other cities have established health centers.

WHAT IS A HEALTH CENTER?

Tobey has collected ten definitions of a health center. They vary so widely that no further argument is needed to show the need of some clearly defined idea of what we mean by the term "Health Center." If additional argument were needed, the same writer's list of more than 70 activities that are now being attempted by health centers would surely convince the most skeptical that it is time for us to pause long enough to acquire at least a satisfactory working definition of our terms. Platt in the accompanying paper will have some definite suggestions to make. The speaker will close his discussion by presenting, for your consideration:

THE AMERICAN RED CROSS HEALTH CENTER

The Red Cross health center is to be the chief health project of the peace time program of the American Red Cross. It is a unique health institution and approaches the subject, from an entirely different angle than the health centers already described.

The story of its birth and growth are bound up in the effort to conserve the great social forces of a national organization and direct them into the field of public health in a way to accomplish the greatest good. Consequently, it was essential to find a project which:—

(a) Fitted the traditions and ideals of an organization with 10,000,000 adult members, many of whom were trained in service to others.

(b) Was fundamental in the field of health.

(c) Would lend itself to the administration and personnel of a great organization with chapters and branches in every part of the United States.

The responsibility for the selection of such a project was great. The care exercised was unusual. We have drawn fully upon the accumulated experience of workers in every field. Physicians, public health officials, educators and social workers have gladly shared with us their secrets of success and warned us of their failures. Out of this wealth of material, by a process of group thinking has come the conception of an American Red Cross health center, which in its primary form can be established and conducted in the smallest community in the United States, yet is susceptible of development to meet the needs of our largest city. This health institution will use the lay membership of the Red Cross, which guided and supported by the trained personnel of the Health Service Department, will bring to the support of the public health movement, the greatest social force this country has ever known.

(Note:—The details of the American Red Cross Health Center were then described and illustrated with lantern slides.)

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FRESH AIR AND INSTRUCTION

A very valuable adjunct to the usual lines of health education is the life in the open. These boys, after an invigorating tramp across the country are resting a while in the midst of the dunes on the lake shore while the instructor tells them something of the geology of the country, explains how the sand came to be there, and perhaps tells them how to revegetate the arid slopes. The group is from Camp Roosevelt, Muskegon, Mich., the type of a genus of camps for boys, which not only furnish to the youngsters the foundations of healthful living, but interest them in the great world of nature.

SYMPOSIUM ON THE HEALTH CENTER
IV. IS THE HEALTH CENTER A HEALTH CENTER? NEED OF A POSITIVE HEALTH IDEAL IN THE HEALTH CENTER

PHILIP S. PLATT, M.A., C.P.H.,
Director, New Haven Health Center,
New Haven, Conn.

Read before Sociological Section, American Public Health Association, at San Francisco, Cal., September 18, 1920.

IT is a tragic truism that man, the crowning glory of creation, is its least perfect physical specimen. Man guards, protects, improves every other living form more carefully than himself. He even accepts imperfection, suffering, disease and deformity as a normal and inevitable accompaniment of human life. He has no conscious "Will to Health."

Perhaps this state of mind is not surprising when we realize that two-thirds of our favored American people have physical defects of a serious or minor nature; that one-third of our American draft army was rejected as unfit to fight for our country, and 15% of those accepted were returned from the training camps; that four-fifths of the draft examinations for the British Army showed defects worthy of note; that the mortality in middle life is on an alarming increase, and that the medical profession is by no means covering adequately the field of much needed curative treatment.

So familiar are we with the idea of sickness and so pressing is the need for medical treatment that our interest in the well person is almost negligible. Dispensaries and hospitals are interested so deeply in getting sick people well that the well person wishing to keep well is not wanted there, if we except a possible well babies' clinic. In one of our largest cities where 10,000 physicians are trying to cure sick people and 300 (in the Health Department) are trying to prevent sickness, how many are devoting themselves to creating health?

And yet there is developing today an unprecedented emphasis upon individual health, not like the beautiful but superstitious worship of Aèsculapius in the Greece of 400 B. C. and the Rome of 200 years later, with its health-conserving rituals, but a more rational attitude based upon our still fragmentary knowledge of hygiene and preventive medicine. That such a rational interest is arising is manifest from the interest that is developing in the thorough physical and medical examinations of well people, the so-called health examinations. We read with some hundreds of thousands of others on the back page of the New York Times literary supplement that the Life Extension Institute has examined over 175,000 people with the aim of making it possible for the individual to preserve his health, and Dr. Fiske states that the mortality was reduced one-half among several thousand life insurance policy holders who received periodic health examinations and counsel based upon the findings, i. e. counsel as to the correction of their hygiene or suggestions as to what form of medical, surgical or dental treatment to seek. Infant welfare stations have been striving for 15 years to get well babies under intelligent medical supervision. Medical school inspection, however, is still chiefly interested in the detection and treatment of physical defects and what the school child learns from the examination about the inestimable value of perfect health and a sane and joyful way to keep it, is indeed slight.

On the other hand this failure of the average school physician and school teacher, and even of many of the school nurses, is responsible for the development of national organizations of ever

widening influence, such as the Modern Health Crusade movement and the Child Health Organization, which should accomplish great good in the direction of creating a conscious appreciation of the importance and the manner of keeping well.

Other indications of an active interest in personal health readily suggest themselves when the growth and popularity of the many new movements like Christian Science and New Thought are considered; when the large variety of books dealing with every phase of healthy living is recalled; and when we see the mass of health leaflets to which no health agency, public or private, can resist the temptation of adding. The popularity of such a magazine as *Physical Culture* is a reminder that the subject of healthful living is a good seller, when made interesting to the man on the street.

But are there many people who are enthusiastically, yet rationally, striving to maintain themselves in the best possible condition; people who when confronted with a choice between taking proper care of themselves at the cost of a little inconvenience, and neglecting to take reasonable care of themselves, will choose the former as a natural thing?

Individuals here or there may come to your mind, but it would seem that only the athlete, as a class, possesses the attitude of mind that makes it possible to do, without a thought of self pity or self indulgence, the many daily acts which others would consider impossible or at least intolerable. Why is it? The reason is clear. The athlete must keep himself in perfect condition if he is to obtain his goal. We others have not so strong an urge. We think it is not worth while to keep ourselves at our best, or that we cannot succeed as we wish in our work if we have to give our bodies reasonable attention such as we are accustomed to give our machines or our bank accounts. Or we think we shall be the exception and break all the rules and still "get away with it." Or we are simply too ignorant or too indifferent. The average man must find a substitute for the urge that motivates the athlete, only a more durable one, for the alacrity with which the average athlete breaks training and practices extremes of self indulgence, when the necessity of his training is removed, must be admitted. How can this be done? Can a red-blooded dominant "Will to Health" ever be acquired through rational thinking? Can the urge come through a religious motivation? Or for the average American must it spring from an economic, a purely materialistic, dollars and cents, point of view?

While these questions await solution, most people would agree that a positive, purposive "Will to Health" is desirable for man. It is the rational end of all preventive medicine. It is the soundest of all national policies to have thus a healthy people. It is essential to the fullest enjoyment of life to be well and to stay well. None of these aims can be fully accomplished if man does not deliberately *will* it.

How, then, shall this desirable "Will to Health" become a reality? We must turn first to those existing forces which should logically be expected to be shaping human mind and action along these lines. Surely these forces are the public school, the medical profession, the official health department, and the groups devoting themselves specifically to health education. Few will dispute the statement that the public school and the medical profession have failed miserably in this respect, and it is difficult to measure in any satisfactory way as yet the influence of the health education which public and private health agencies have engaged in earnestly during the past fifteen years, particularly through health officials, public health nurses, dietitians, and social workers.

However great the accomplishment of these forces, we are all ready to admit that it is still woefully insufficient.

Greater energy, better intelligence, fresher vision are needed.

Recently, with the health center, there has undoubtedly appeared a new expression of public health activity, rich in opportunity to bring health nearer to the lives of people. Dr. Brown has just told you of the present status of the health center movement, a movement which is developing so rapidly and in so many different manners that only the Department of Health Service of the Red Cross National Headquarters makes any pretense to know the actual situation. So many and varied in type are the health centers of today that their discussion is only confusing if some degree of rough classification is not offered. Therefore five distinct types are briefly enumerated, common only in respect to a general policy of coöperation with other agencies and in some form of health education work.

Type I, which limits itself to health education along the usual lines of exhibits, talks, literature, and to functions of an information clearinghouse character.

Type II, which does the above but also engages in medical treatment of the sick, through various clinics.

Type III resembles a minature health department, for it carries on in a local district all or nearly all of the functions of the official department of health under a plan of decentralization.

Type IV is radically different in limiting itself to consultative medical diagnosis of the most modern and scientific character, dependent upon a group of experts and primarily designed to aid and educate the less highly trained physician.

Type V is differentiated from the preceding types by reason of its positive emphasis on the possibility, and the desirability, of good health. It is primarily interested in the well or only slightly indisposed person. It gives careful physical examinations to well people. It is not a dispensary for it does not give medical treatment. It wishes to create a "Will to Health."

Five types—as widely different in method and even in spirit as could be imagined, and all bearing the same name; each type of undoubted value in the public health field, and each arising out of the needs and opportunities of the local situation and reflecting the point of view and the desires of the local people inaugurating the enterprise.

However I think you will agree that Type V more nearly realizes the ideal of the health center than the others. The question which I ask you to consider is under what circumstances can a health center really develop this dominant note of enthusiastic, rational constructive zeal for better physical manhood? Or are we deluding ourselves with a will-o'-the-wisp?

I invite your discussion of this matter, placing my own convictions before you as a basis for the discussion. Such a health center must concern itself to the highest degree possible with well people only or with people who are merely aware that they are not as well as they ought to be, but who would not consider themselves sick, offering these a careful physical examination, with as much personal and social history as possible. Routine urine analyses should be made, with X-ray, blood or bacteriological analyses made upon the slightest suspicion, preferably by arrangement with some outside agency, like the Health Department laboratory. The purpose of this health examination should be to engage the individual's interest in his own health. He should learn with pride and appreciation about the normality of his separate organs, discover those deviations from normal in a manner and in an atmosphere which will arouse in him a common sense enthusiasm to correct the defects, and to make of him a willing enthusiast on matters of good hygiene. Such an interest in the supposedly well person, such an atmosphere of "Will to

Health," as will be sensed by the individual, can only be developed where medical treatment of the sick is entirely removed from the health center. It goes without saying that it must be available in the community in question. It is only the existence of medical resources in the form of hospitals, dispensaries and local physicians, that makes possible the establishment of this positive health center. But if the treatment of disease is allowed within the confines of the health center it is inevitable that the emphasis should swing from interest in the well person to care of the sick. An atmosphere of the pathological, the smell of disinfectants, the cries of the suffering or the alarmed, the expressions on the faces of those who are leaving after painful treatment—the long wait under these circumstances necessarily establishes a frame of mind which is anything but desirable from the point of view of creating health enthusiasm. Perhaps an extreme picture has been drawn. But even under the best conditions in dispensary or hospital, with a special staff and at special hours, the patient's conscious or subconscious reaction to an established center of medical treatment cannot fail to defeat the main point of the positive health center, which is to keep the individual's mind fixed on his opportunity for good health through his own right living rather than upon the idea of medical treatment for early or advanced sickness.

There are, of course, other requirements to be exacted of a true health center. The personnel must be imbued with the idea of health conservation and think in terms of health rather than in those of disease. The educational activities must take on this positive character with a freshness and a vigor not found in the educational material of today. As the most effective educational method is through personal service, which the public health nurse exemplifies, the educationally minded, generalized nurse who uses her bedside nursing as an opportunity for health teaching is almost a necessity in the true health center. Likewise provision must be made, either directly through the health center personnel, or indirectly through the social agencies of the city, for modern social service work, for the conditions which social service can alleviate or remedy are responsible for so much of our ill-being. Still another step, much to be desired in a true health center, would be facilities on a small demonstration basis for individual corrective physical training. The man or woman who in a few weeks can see the benefit which he or she may obtain from a few general or special exercises in correcting fallen arches, improper foot wear, weakening abdominal muscles or general lack of muscular tone, will the more readily correct other unhygienic habits and will become an enthusiastic and contagious example of the value of good living.

These conditions exist fully in no health center today. They are approached in very few. The Y. W. C. A. in New York City was the first to my knowledge to offer a free medical and physical examination to any well wage-earning girl, following up the girls who needed medical treatment or physical training.* The dominant note of this health center is "Be not content with half health; make yourself your physical best." Through unhurried physical and medical examinations of the most personal nature, through individual health exercises in a small demonstration gymnasium, and by helping individuals needing medical treatment to find it, this modest health center is accomplishing very real results in health realization and in awakening a "Will to Health." Furthermore, what is particularly interesting is that the health ex-

*This health center has been taken over by the Women's Foundation for Health as a demonstration health center of the positive type. A fee of $5.00 is now charged.

amination is really in great demand. Within a short time after the establishment of the center appointments had been made for two months in advance and a waiting list of 200 recorded.

A much restricted type of true health center work is being carried on with conspicuous success by many of the Universities and schools of the country, whose annual physical examinations of a careful character are unfolding unsuspected conditions of great health significance among the student body.

The Framingham Tuberculosis and Community Health Demonstration has gone far along many of the true health center lines, while concentrating on tuberculosis as its major problem. The Life Extension Institute and the health services of several of the Life Insurance companies are carrying out, through periodical medical examinations, one of the cardinal features of the health center.

There are of course many instances of community health organizations in which the opportunity for medical examination on the part of the individuals under direct observation is arranged for. An excellent example of a combined health and relief program for a community, with emphasis upon medical examination of every member of any family under care, is to be found in the Health Station of the Association for Improving the Condition of the Poor, New York City.

I beg your indulgence in referring to the New Haven Health Center. It is but four months old.* It aspires to be a true health center; it is not so yet. It is unique: what health center is not?

As briefly as possible, then, the New Haven Health Center is supported and controlled by the Board of Health, Visiting Nurse Association, New Haven County Chapter of the Red Cross, and New Haven Medical Association. It serves a 75-block community of about 27,000 people, predominantly foreign born or of foreign parentage, chiefly Italian. Its staff of 19 consists of a director, a secretary, a full time medical examiner (medical director), a half time medical examiner (a woman physician), two physicians, each holding two infant welfare conferences weekly; detailed by the Visiting Nurse Association are a supervisor of nurses, 7 general public health nurses, and a part time dietitian; detailed by the Health Department are 2 school nurses, 1 sanitary inspector, and a dental prophylactician. In addition a number of volunteers are assisting in various capacities.

Its activities are best realized by considering separately those carried on within and without the headquarters. The headquarters is given over to the physical and medical examination (but not treatment) of the well, near well or unwell, to the periodic examination of pregnant women, to individual health advice, to educational and informational work, to nutritional classes, vaccination of preschool children, the frequent staff conferences, routine administration and executive work. The important point is that the individual coming to the Health Center meets with a helpful and healthful atmosphere. No opportunity is missed to emphasize the possiblity and desirability of more healthy living.

Outside headquarters, in the district, our public health work embraces instructive bedside nursing and health education by generalized, localized nurses, health supervision of school children, dental hygiene, dietetics, and sanitary inspection. The three infant welfare stations are also located outside at different points in the district, and a fourth is soon to be established in the headquarters.

In these few words the barest outline of the Health Center is given. We are attacking disease through:

*On Nov. 13, 1920.

Acting as associate epidemiologist for the Health Department,*

Generalized nursing care,

Early recognition, by means of physical examinations, of conditions needing medical attention,

Bringing the individual needing medical care in touch with his doctor or dispensary,

Supervising the health of the school children.

We are also conserving health in the healthy through:

Health examinations of well people and pregnant women,

Advice in personal hygiene,

Well baby conferences,

Special health classes,

Educational work of leaflets, posters, lantern slides, window exhibits, etc.

Seeing that prophylactic measures are employed when possible,

Health talks before groups,

Educational work of school nurses, dietitian, dental hygienist, and sanitary inspector.

Community interest in health matters is being aroused through a local advisory council, and shortly we hope to have organized block workers.

Statistics show inadequately the real work that is done by any health center. Much of the most valuable work that is done cannot be so conveniently labelled and counted. However there is some significance in the fact that more than 19,000 health promoting services were performed by the Health Center during the first four months of its activity.*

We ardently hope to progress effectively along positive health constructive lines, believing not only that this is the most needed line of health center development, but also that it is a development which Departments of Health must eventually embrace.

In conclusion, we repeat that the time has come for a more aggressive concern with positive health ideals, and that among other agencies the health center has an unprecedented opportunity to emphasize this constructive point of view. The conditions under which it is believed this can be done successfully have been indicated. A few examples of health centers which are trying to realize this ideal have been mentioned. May the health center movement develop, not unconscious of the splendid opportunity for leadership in constructive health teaching and in the arousing of an enthusiastic "Will to Health."

*On Nov. 15 the Health Center, in the person of its Medical Director, Dr. Ettore Ciampolini, was appointed Associate Epidemiologist of the Health Department and requested to assume responsibility for the control of communicable disease in the Health Center district. A part time contagious disease nurse is at his disposal. This heavy responsibility was accepted only because it was felt that under the circumstances it was our duty to the community and the greatest service the Health Center could render the Health Department.

*The health services numbered over 30,000 on Jan. 1, 1921.

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Prophylactic Inoculation Against Yellow Fever.—From the results of vaccination in guinea pigs, it may be concluded that when sufficient quantities of the killed culture are given, these animals are usually rendered resistant to a subsequent infection with *Leptospira icteroides*. The degree of protection, however, is not strictly proportional to the amounts of the vaccine inoculated. As regards the vaccination of human beings, thus far the results are distinctly encouraging; but it is realized that many more observations will be needed before a final decision of its value can be arrived at.—H. Noguchi and W. Pareja, *Jour. A. M. A.*, Jan. 8, 1921, 96 (*D. G.*)

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Not too early to be thinking about the Fiftieth Annual Meeting of the A. P. H. A. in New York City, November 14-18, 1921.

SYMPOSIUM ON THE HEALTH CENTER

V. THE AMERICAN RED CROSS HEALTH CENTER*

What It Is and How It Functions

THE American Red Cross is the people's organization. It inclines its ear to the call of humanity. It responds to the call whenever conditions and resources make it possible and feasible to do so. The war and the influenza epidemic have created a more general and a more earnest interest in physical fitness. National, state and local health officials, private health agencies, doctors, nurses, teachers and social workers, all are endeavoring to make this new interest really count for better health.

The call for continued and extended health service came to the Red Cross from various sources. It was urged that the Red Cross had a nation-wide organization and influence, that it had acquired considerable experience in health work, and that, therefore, it was most advantageously situated to direct this new interest of the people in health into channels that would insure, not only its conservation, but also its growth along practical health lines. In response to these earnest requests the Red Cross decided to make health service the central feature of its extended, peace-time program. It carefully considered the following three important questions:

1. In what manner can the general public be intelligently interested in the promotion of public health?

2. Through what means can their intelligent health interest find practical expression?

3. How can lay people become real participants in public health activities without encroaching upon the technical functions of professional health workers?

A SOCIAL HEALTH AGENCY

The American Red Cross believes that it has found the answer to these three questions through its social health agency, the Red Cross Health Center, which is intended primarily, if not solely, as an institution from which health radiates rather than an institution to which disease gravitates. The Red Cross Health Center has been designed to include in its activities, in addition to clinics which are always directed by local doctors, those of a general informational, social and educational character, which can be organized and conducted by lay people, with technical advice and supervision also provided for in its scheme of organization.

The following is a summary of these Red Cross Health Center activities, which distinguish this institution from the clinical health center, an institution primarily intended for the diagnosis and treatment of diseases:

1. Health Information Service: Puts people in touch with existing health agencies to answer such questions as: (a) How they may be admitted to hospitals and sanatoria; (b) How they can have their drinking water analyzed; (c) Where they can get a nurse; (d) When to call for the health officer or a doctor.

2. Health Education: (a) Distributes popular health literature; (b) Gives health lectures; (c) Secures health slides and films; (d) Gives health playlets.

3. Health Exhibits and Demonstrations: (a) Gives a succession of health exhibits on a hundred or more health subjects; (b) Gives demonstrations, such as modification and home pasteurization of milk and how to care for the baby.

4. Health Instruction: (a) Class work in home care of the sick, first aid, food selection, personal hygiene; (b) Club work—Mothers' Health Club, Little Mothers' League, Children's Health Hour.

5. Growth and Nutrition Classes:

*This article was prepared for the JOURNAL by the Department of Health Service of the American Red Cross, Washington, D. C.

(a) Weighing and measuring of babies and school children; (b) Preparing special lunches for improperly fed children.

GENERAL RED CROSS POLICIES

The Red Cross is a service organization. It serves humanity both in its individual and in its social aspects. It serves persons, private organizations and public agencies. It undertakes humanitarian work when the need for it has been definitely ascertained and when no other agency in the community is established or prepared to undertake it. The Red Cross, however, never claims any priority right in undertaking this work. It never considers that in any respect it has preempted a local social welfare or health field. While it never undertakes any work in which another local agency is engaged, it may serve in a supplementary capacity to such an agency in order to enable this agency to carry out its program. It withdraws from the field, however, just as soon as this agency is prepared to function completely without the aid of the Red Cross.

The Red Cross recognizes that the legally constituted health authorities are supreme in the field of public health. It recognizes at the same time, however, that these public health authorities are usually handicapped by inadequate civic and financial support. It sees a great opportunity, therefore, to act in a supplementary capacity to the public authorities in educating the general public to a better appreciation of their health service. It thinks that it can do so best by demonstration through its educational and clinical health centers. Through these health centers the public is gradually being educated, and is approaching a proper understanding of the character of the local health agencies and of their scope of possibilities in promoting health and saving lives. When this knowledge has taken firm root in the public consciousness, it will be possible for the Red Cross to transfer all of its health activities to these health agencies in order that they may be permanently administered and maintained. The Red Cross, therefore, consults these agencies, both state and local, before it establishes its health service anywhere, and the program of the Red Cross educational and clinical health service is adapted to their health programs.

HEALTH CENTER RESPONSIBILITY

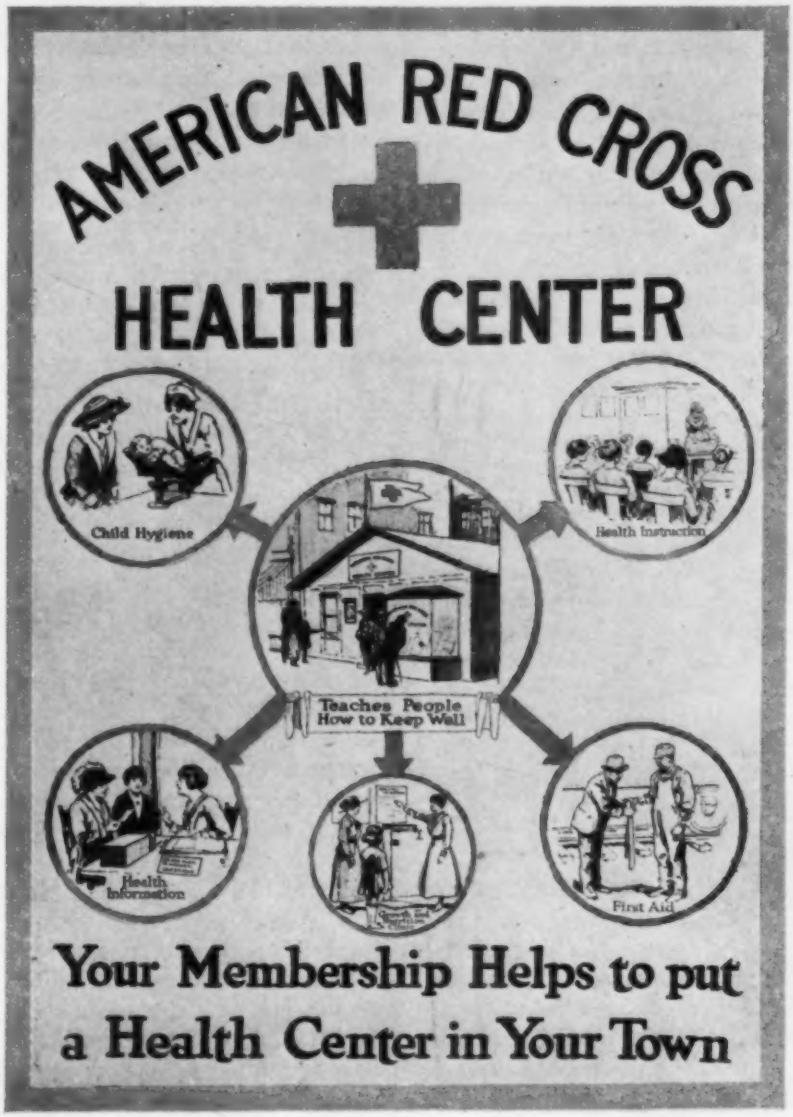
Red Cross Chapter officials are governed in their work by the established principle that a democratic organization, such as the Red Cross, can undertake community welfare work of any kind only in a broadly representative capacity. Therefore, the management of a Red Cross Health Center, as a community health enterprise, is the direct responsibility of the Chapter Executive Committee, which responsibility it cannot delegate to a sub-committee of professional workers or to another health agency in the community, *as long as it is being maintained by the Red Cross.* The management of a Red Cross Health Center then, is and remains in the hands of local lay people acting in a representative capacity for the community. Provision is made, however, for a Health Center Advisory Council, consisting of representative officials of those agencies in the community which are actually operating in the local health field.

The membership of this Health Center Advisory Council includes the Health Officer, Superintendent of Schools, an official of the medical society, a dentist, a representative of the Public Health Nursing Association, of the Tuberculosis Committee, of the Child Welfare League, and of other local agencies that are engaged in some form of health work. With these local authorities to call on for technical information, advice and coöperation, and with the technical supervision and direction provided through the Red Cross Health Service Department, both at National and Division Headquarters, the lay executive committee of the Chapter is able to conduct a

Red Cross Health Center as a most useful supplementary health agency of the existing health forces in the community.

THE CLINICAL HEALTH CENTER

While lay people can conduct these general health activities, it should be kept in mind that this does not apply to the medical activities of the clinical health center for the diagnosis and treatment of diseases. Where clinics are conducted, in addition to these social health activities, it should be clearly understood that the local doctors are in supreme command of the clinics and that their "right hand man" is the nurse, in the handling of patients, the keeping of clinical records, and in the follow-up work. Even then, however, general lay administration of the Health Center is desirable. The lay director will not be inclined to interfere with the conduct of clinics which will be recognized as being entirely technical in their character and, therefore,



entirely outside of the supervisory jurisdiction of a lay person.

The character and scope of a health center are largely determined by the size of the community, its available resources, and the prevailing private, official and professional interest in the project. Where there is a relatively large population living close to the poverty line, where there are many unmet needs for specialized medical services, where there is a high type of social and professional leadership, the interest in organizing facilities for proper and adequate medical treatment is paramount. While the educational health program would seem to offer a more generally applicable and a more permanently effective means of promoting health and preventing diseases, the active and insistent demand for better medical service to the sick controls the hearts and the minds of those engaged in health work.

When, therefore, the establishment of a health center is being contemplated, when a health center program is being formulated, it is but natural that the necessity for organizing medical clinics for those unable to pay should receive primary recognition. The clinical health center organizes the professional equipment and special skill of physicians for the diagnosis, treatment, and prevention of diseases among certain groups of ambulatory patients. The ideal clinical health center, however, organizes in addition the social and educational equipment and special skill of social health workers for the more general diffusion of health intelligence.

USING ALL HEALTH RESOURCES

The Red Cross, through the medium of its Health Center, diffuses health intelligence and makes the teaching a personal hygiene of broader application. To this end it uses every suitable material and social device, every available health resource. It uses the primary health resources, the doctor, the Health Officer, the dentist, the nurse and the dietitian, for technical advice and information, for lectures, instruction courses and demonstrations, and for clinics. It uses the secondary health resources, popular health literature, issued by official and private health agencies. It creates health resources. Through the health playlet it makes the child a health resource; the young girl through the Little Mothers' League; the artist through the preparation of health posters and exhibits; the story teller through the Children's Health Hour. The gospel of health is spread by the health fairy, the health clown, and the marionette; by the newspaper, the stereopticon slide and the motion picture film; by the neighbor, relative and friend, by the teacher, preacher and social worker.

THE RED CROSS HEALTH CENTER IS A PLACE FROM WHICH HEALTH INFLUENCES OF ALL KINDS RADIATE INTO ALL PHASES OF THE COMMUNITY LIFE

During the first year's operation of the Red Cross Health Service Department a total of 318 Red Cross Health Centers have been established throughout this country by local Red Cross Chapters. Some of them constitute only the small beginnings in educational health activity with the usual addition of a baby welfare clinic or a nutritional clinic. Others have more ambitious programs in preventive and curative health work. Besides these, there are 588 Chapters that have undertaken some phase of health work, other than nursing and first aid, which constitute health centers in process of organization. The Health Center idea, therefore, has taken hold of some 900 Red Cross Chapters up-to-date. This demonstrates that there is a tremendous, country-wide interest in public health, that the Health Center is a most timely institution, and that the health forces of our communities can be brought together for the common good.

SYMPOSIUM ON THE HEALTH CENTER

VI. BABY HEALTH CENTERS

LYDIA ALLEN DEVILBISS,
Surgeon (Reserve), U. S. Public Health Service,
Washington, D. C.

BABY Days and Baby Weeks have played a large part in arousing public interest in child welfare. They have also been of great service to the babies. But these occasional examinations of large numbers have but served to emphasize the need for periodic inspection of children of the pre-school age during the most plastic period of their development. These regular examinations may best be obtained in the Baby Health Center.

Baby Health Center is used as a single term to cover all forms of baby and preschool age health work conducted from a given center. The Baby Health Center differs from some Infant Welfare Stations, Milk Stations and Baby Clinics in that it is not intended primarily for the children of the poorer districts, but is meant to serve all the children of preschool age of a given community. To have a Baby Health Center associated in the public mind with care given indigents would be fatal to its success. It should be established, whenever possible, as an integral part of the city or county department of health.

A Baby Health Center in its simplest form consists of a convenient place equipped with a pair of scales, a table, a few chairs and some records, where a physician, nurse or interested person with a creditable knowledge of young children may weigh and observe for deviations from the normal such young children as are regularly presented by their mothers, and to refer such children as are needing treatment to the proper source.

In its most complete development, a Baby Health Center may include hospital equipment or facilities, with children's specialists and trained nurses in attendance, and lay workers, paid or volunteer, who are responsible for the enrollment and attendance of all the children of their respective districts.

Personnel.—A public health nurse, and if possible a physician especially interested in keeping children well, each paid for his service, are advisable in the conduct of a Baby Heath Center. A group of lay workers, club women and interested mothers to enroll children and to encourage their attendance, to assist at the Center and to help with the follow-up work are essential to its success.

Location.—A Baby Health Center needs to be convenient of access. The building should not have religious, political, fraternal or other affiliations which would prevent any appreciable part of the community from attending. A community center, library, rest room, schoolhouse, courthouse or city hall or like location may serve as a Baby Health Center, rent free.

Equipment.—A good pair of balance scales and a tape line are essential. Spring scales are seldom satisfactory. The scales should be provided with a pan or basket securely attached to the scale for weighing the smallest babies. An ordinary kitchen table, plain wooden chairs of comfortable dimensions and a roll of paper towels or napkins complete the necessities.

Records.—For records, consult the local city or state department of health. Standard Child Hygiene forms will be sent on request to the U. S. Public Health Service, Section on Child Hygiene, Washington, D. C.

Time.—A Baby Health Center may be opened any time during the year. The early summer is perhaps the most pro-

pitious time to open, beginning in June and continuing through the hot weather. With a good start through the summer it may be possible to continue it throughout the year. This is the most desirable arrangement.

Attendance.—The establishment of a Baby Health Center, even with complete and attractive equipment and the presence of children's specialists and trained nurses, will not insure the attendance of mothers with their babies. Obviously, the physician and the nurse cannot canvass the neighborhood or urge an acceptance of their services, except in the routine of their professional calls. For this reason, the success of a Center in large measure depends upon the organization, or better still the organizations, which are backing it in the community. Without popular support and without the services of lay women to enroll babies and promote their regular attendance the conduct of a Center is uphill work and will be without that large measure of success which the effort merits.

Organization.—In a small city or rural community, a physician, health officer or public health nurse may establish a successful Baby Health center without formality and with very little organization. But in larger cities or to establish one to serve the babies of a county, more organization is necessary.

The health officers most successful in establishing Baby Health Centers and other forms of community health activities are those who have brought to their support the entire organized forces of the community. This may be accomplished through a health committee, composed of one representative elected or appointed from each of the organizations of the community directly or indirectly interested in health. This committee may act as a federation of organizations, or where there is demand it may serve as the nucleus of a new organization, a Health Association.

In the absence of a health committee, or as a sub-committee, a child welfare committee or child hygiene council may be organized. This form of committee is particularly valuable in organizing state activities in child hygiene, and in that event is composed of the state chairman of child welfare of all the existing state organizations. In many cities or club districts, this child welfare organization is already effected by a federation of all the child welfare sections of local organizations.

This coöperation of all agencies, including both private and official bodies interested in health and child hygiene, is essential to the success of the Baby Health Center.

Clinics in connection with a Baby Health Center.—Baby Health Centers away from the larger cities may find themselves handicapped by the absence of pediatrists or other specialists to conduct special examinations of babies, or to direct the treatment of such cases as may require more facilities than can be supplied in the district. Where there is a demand for a special clinic, or sufficient cases may be brought together to warrant, arrangements may be made with a specialist to attend for the day, the local doctors assisting with the examination and operations, and carrying out the after treatment. In such clinics a double purpose is served: the little patients have the benefit of expert advice and treatment and the local physicians have the benefit of the clinic. In this manner a large number of children are given expert treatment when otherwise it would have been impossible for them to have obtained it.

Whenever possible the Baby Health Center or clinics in connection with it should be conducted without charge and without any reference to charity. But when the appropriations for public health protection are not adequate to cover the expense then other provisions must be made. The expenses of the clinics may be met by a pro rata charge, or the patients may pay as they are able. Or, as

has already been done successfully in several districts, a small membership fee is charged each family sufficient to cover all expenses of the Health Center.

Health of School Children.—The Baby Health Center which gets well established during the summer may be in position when school opens, if desired by the school authorities, to extend its facilities to children of school age. Where the Center location adapts itself to school clinics a dental chair may be established; eye, ear, nose and throat treatments and operations furnished; physical and mental examinations provided for, and nutrition clinics organized.

Health work for children offers the one easiest method of approach to the hearts of a community. The Baby Health Center is but the beginning. Under the direction of a trained public health officer, laboratory facilities, tuberculosis clinics, venereal disease clinics, and physical examination clinics for the entire community may be added as their necessity becomes apparent and the desire for them is expressed. Thus in the course of a comparatively few years and in a perfectly logical manner a complete Health Center and adequate health protection for the entire community may evolve from the public health work begun for the children in the Baby Health Center.

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A Study of the Incidence of Hereditary Syphilis.—A report recently made to the American Pediatric Society presents a study on this subject which was made with the aid of a grant from the U. S. Interdepartmental Social Hygiene Board. The method employed was the histological examination of a series of placentas, together with a Wassermann reaction on the fetal blood collected from the umbilical cord at birth. The material collected from several sources included about one-fifth of the children born in St. Louis over a period of months, almost equally divided among charity and private patients. Up to the present 129 infants of two or more months of age were examined. Ten per cent of these presented undoubted evidence of syphilis, and the remainder were just as evidently non-syphilitic. When classified according to races the incidence is 15.8 per cent among negroes and 5.5 per cent among whites. The histological examination of the placenta as to the presence or absence of syphilitic changes corresponded to the established diagnosis in 95.5 per cent of the cases. The lack of correspondence consisted entirely in finding no syphilitic changes in the placenta in cases in which the infant had syphilis. In every instance in which the placenta was noted as showing syphilitic changes, the infant was found later to have syphilis. In this group of cases in which the diagnosis was established, the Wassermann reaction on the placental cord blood corresponded to the diagnosis in the infant in 96.5 per cent. Here also the discrepancies were due to the findings of a negative Wassermann reaction in the fetal blood in instances in which the infant was syphilitic. In every instance in which the fetal blood gave a positive Wassermann reaction the infant was found to have syphilis.

Therefore, in order to give a clean bill of health to an infant at birth, it was necessary to have all three examinations negative, that was, maternal Wassermann reaction, placenta, and cord blood, and even then there might be some uncertainty. The fact that the treatment of the mother during pregnancy will result in a non-syphilitic child had been proved in another observation. In this series, that observation had been confirmed. It was the belief of the observers that the whole group fairly represent a cross-section of the population of St. Louis and if such is the case, the incidence of hereditary syphilis at the time of birth was 6 per cent.—P. G. Jeans, M. D., and J. V. Cooke, M. D., XCVIII—8, Aug. 21, 1920. (*A. N. T.*)

SANITARY CONTROL OF A PUBLIC SWIMMING POOL

GEORGE W. SIMONS, JR.,
Chief Sanitary Engineer, Florida State Board of Health, Jacksonville, Fla.

Read before Sanitary Engineering Section, American Public Health Association, at San Francisco, Cal., September 17, 1920.

All parts of modern swimming pools must be maintained in sanitary fashion or they may be public health risks. This paper outlines some of the problems and tells how a pool in Florida has tried to solve them. Here are scientific observations of pool conditions not often secured and more rarely at the service of officials.

SINCE its opening in April, 1920, the managers of a public swimming pool in South Jacksonville, Fla., have been coöperating with the State Board of Health in the operation and control of their pool. Several months before its opening the owners sought advisory suggestions as to changes in the pool construction, dressing room arrangements, and regulations. A thorough inspection was instituted, a number of defects pointed out, several simple recommendations made which were at once complied with. Following the completion of reconstructive changes and building renovation the pool was opened to the public; since then with the exception of a few days, a careful watch has been kept on the operation and supervision. Numerous bacteriological examinations have been made of the pool water, careful attendance records kept, also records of daily mean temperatures of pool and air.

The pool was built several years ago as a part of an amusement center, previous to the passage of the Florida statute on bathing places. Until this year the management has been more or less careless and indifferent to proper operation with a result that on several occasions in the past the State Board of Health has almost found it necessary to close the pool. During the summer of 1917 a number of cases of eye and ear infections in Jacksonville were attributed by medical men to this source, but this was never fully confirmed.

The pool is constructed of massive concrete surrounded by a frame structure which houses the dressing rooms, showers, toilets, laundry, spectators' gallery and offices. The pool proper is 101 feet in length, 44 feet in width, 3 feet deep at the shallow end and 8 feet deep at the deep end, having a capacity of approximately 183,000 gallons. The plant has its own water supply in the form of an 8 inch deep-drilled, free-flowing well. Jacksonville, it might be stated, is located in the artesian area, deriving a hard water from the Vicksburgian aquifer. The pool well has a strong flow and a head of about 20 feet at the ground surface. Water flows through the pool continuously into the St. Johns River nearby. There are no circulation or filtration apparati.

Water enters the pool through two 3-inch pipes submerged in the shallow end of the pool and leaves through a 6-inch opening located in one of the deep end corners.

The walls and bottom of the pool have a smooth cement finish painted a light color.

Surrounding the pool, ten feet wide and six inches lower than the 18-inch

ledge of the pool top is an areaway wooden floor for bathers. The dressing rooms are located on the sides of the building, one side for men and the opposite side for women. The manager's and clerk's office is at the head and center of the pool where constant supervision can be maintained over the pool and its users at all times. A professional swimming instructor is in attendance at practically all open hours.

In making the first inspection previous to the opening an effort was made to suggest little changes which would have a tendency to better control the bather in his movements and conduct after entering the building. In former years, for instance, the management had allowed spectators and guests the freedom of all floors. Seats were provided in the areaway surrounding the pool and those not swimming or simply waiting could track dirt over a floor primarily intended for bathers. This custom resulted in much contamination being carried on bare feet directly into the pool from the dirty floors. It was felt that a simple control of the bather in his movements, and the segregation of the spectator or waiting guest would accomplish a decided improvement. Formerly several entrances were also provided from the dressing compartments to the pool, some of these entrances being remote from baths and toilets. It was, therefore, advised that all openings except one on each side be eliminated, that one located adjacent to the showers and toilets. In other words, the path from out of doors to the dressing rooms, thence to the baths, toilets and pool, was progressive and no ground had to be covered several times. A person entering the pool has to enter near the baths and in such instances when near the showers he usually bathes and voids the bladder. The areaway around the pool was also fenced off in such a manner that no spectator could gain access to floors intended for bathers. Furthermore, spectators were excluded from dressing rooms or floors leading thereto. In this manner the bather is controlled fairly well from the time he enters the building, also the spectator. The attendant is so located that no one evades scrutiny. In the private pool as found in clubs and gymnasiums it is comparatively easy to effect a control of the bather and establish certain strict requirements but to do so in a public pool where a fee is charged without antagonizing patrons is a more or less delicate matter.

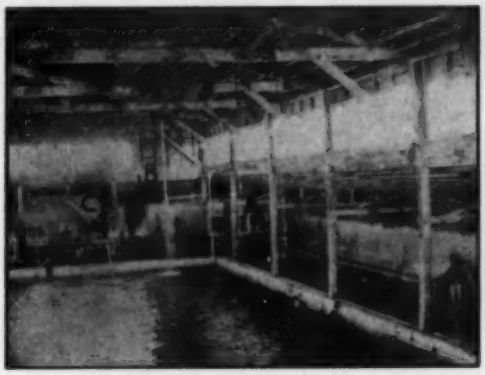


PLATE I

Note areaway around pool and segregation of spectators by fence. Laundry is at A, entrance to dressing rooms at B, and office and attendant at C.

In addition to the several changes outlined above, a set of rules and regulations were drawn up and posted conspicuously in every dressing room, in corridors, in toilets, etc. These regulations were as follows:

NOTICE!

TO THE PATRONS OF SWIMMING POOLS AND OCCUPANTS OF THIS DRESSING ROOM

To maintain a high standard of cleanliness and sanitation and protect the health of all patrons, we respectfully request you to follow the few instructions given below. The management reserves the right to refund fees and refuse the use of dressing rooms or pool to those deviating from these instructions.

It is our aim to conduct this pool as

directed by the State Board of Health in accordance with Florida Laws, Chapter 7825 (No. 43).

1. No spitting is allowed into the water of the pool, on any fixtures, equipment or floors.

2. Do not deposit waste or refuse in dressing rooms. Receptacles are provided for all refuse.

3. Before entering the pool you are requested to relieve your bladder and take a shower bath. This is for your own protection.

4. Persons having skin eruptions or disease will be refused the use of the pool.

5. No profane or boisterous language will be permitted in this building.

6. Any person detected defacing property in any manner will be arrested.

All patrons should conduct themselves with decorum as Ladies and Gentlemen and assist us, by their coöperation, to maintain a pool meeting the sanitary requirements of the State Board of Health.

The management will appreciate any suggestions by patrons leading to the betterment of the pool and this building.

A number of large signs were also conspicuously posted requesting bathers to take showers before entering the pool.

No sooner had the pool opened for business than patrons observed the differences between the old and new. Many people made kindly and approving remarks about the changes and an air of confidence was observed. The patrons fell in line to a surprising degree and where formerly lack of order and control prevailed a willingness to obey was found. The toilets and baths are extensively used and the management states that of late nearly everyone who enters the pool first uses the toilet and showers. Since April, 30 bathers have been refused the pool because of skin infections.

Suits are used. A great many bathers bring their own suits; others rent from the management. All suits and towels after use are thoroughly laundered and dried in a small laundry provided on the premises. This was also added at the suggestion of the State Board of Health. This laundry is equipped with several large vats, scalding water, and an electric washer. All suits are thoroughly soaked and washed in suds and hot water, twice rinsed and wrung out. Towels are likewise handled and finally rinsed in a water containing sodium hypochlorite.

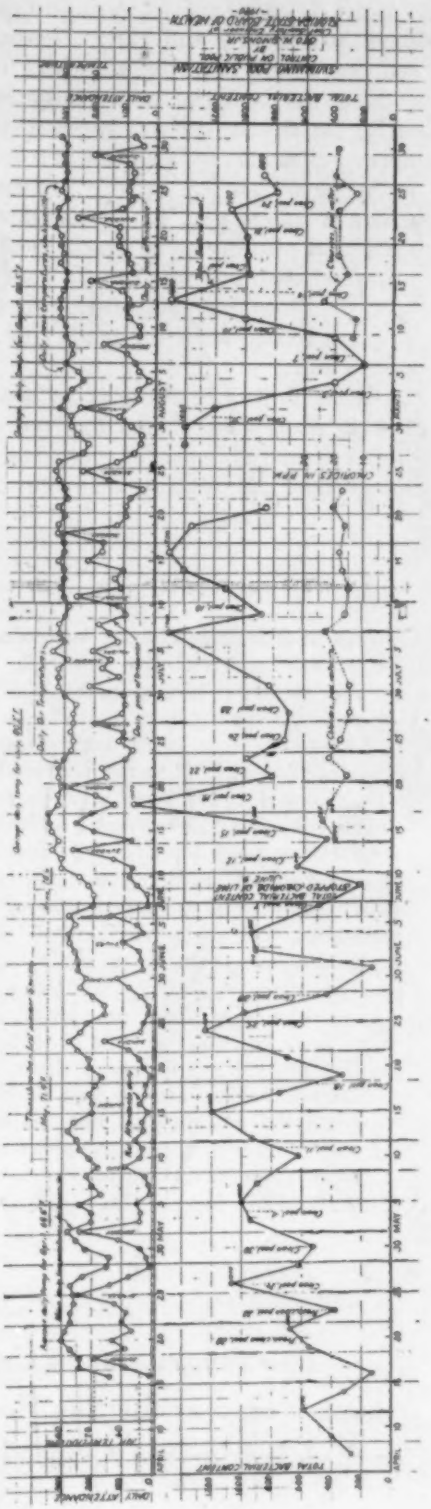
Pool cleaning is done by completely emptying the pool on an average of twice weekly and scrubbing with stiff brushes and soap. A thorough hose flushing follows the scrubbing. After the flushing the outlet is opened, the well turned on and clean water allowed to wash over the floor to the drains. The outer valve is then closed and the pool allowed to fill. When the water elevation reaches two side overflows the outgoing valve is partially closed to maintain a steady head. In its daily operation the continuous flow through the pool amounts to about 25,000 gallons an hour of new water which means a complete water change about every seven hours. The average temperature of water in the pool during August was 78° F.

The attached graphs show something of pool operation. Until about June 10 the daily mean temperature of air was quite low; this naturally affected pool attendance and the bacterial contents. After June 10 the daily temperature gradually mounted. The average for July was 80.2° F. and for August 80.5° F. The attendance curve shows a number of periodic peaks which assisted the management greatly in selecting cleaning dates. Sunday attendance figures are especially high, also the Thursday holidays after June 3. With the persistence of summer weather follows an increase of travel to the nearby ocean beaches; consequently the pool daily totals do not increase as one would expect. The attendance follows the temperatures. It will be noted in July (25-31) a drop in temperature was accom-

panied by a decided drop in patronage. During June the average daily attendance was 126, for July, 147, and for August, 105. The drop in August was undoubtedly due wholly to heavy beach travel.

The bacterial results are of interest in the work with this pool. When daily mean temperatures were low, to June 10, the average bacterial contents were comparatively low, but this average began to increase with the higher daily mean temperature. The pool attendance increased also with the advent of warmer weather but not to a great degree. The fluctuations were wide and varied after June 15. From early in May until June 9, nightly applications of chloride of lime were made which doubtless were effective. The high bacterial contents it is believed were mainly due to causes other than contamination by bathers. In every examination gas fermentation of lactose has been noted in 10 cc. Durham tubes, only occasionally in 1 cc. and very seldom in the 0.1 cc. tube. Standard methods were employed, all counts were on agar-agar incubated at 37.5° C. for 48 hours, and fermentation in lactose broth. The average bacterial counts for April were 570; for May, 800; for June, 770; for July, 1,600, and for August, 900. The latter two months experienced the increased air temperature.

The bacteriological method of ascertaining the sanitary quality of a pool water is generally recognized as being faulty to the extent that results are not available for at least 24 hours following the sample collections and usually not until 48 hours. An endeavor was made to find a ready means of ascertaining pool water quality. It is well known that body excretions contain chlorides; also the natural water contains chlorides. It was thought probable to arrive at some consistent relation between the chlorides variations in pool samples, the bacterial contents and the pool attendance. On June 14 the chlorides content determinations were started and continued until



August 31, with the exception of a few days in late July and early August. It will be noted that the chlorides curve follows the bacterial curve quite regularly, but the variations are small. The normal chlorine of the pool water issuing from the well is 9.8 p.p.m. The method offers a suggestion to future development and possibly some quick, easily-determined chemical test can be developed that would enable pool operators at any moment to ascertain the quality of their pool water.

At no time since the tests on this particular pool have started has the water been considered deleterious or potentially dangerous. It is true that the counts have at times exceeded the California standards, but it is hard to believe the excesses were serious considered in conjunction with the lactose fermentation and daily mean temperature.

The above briefly describes the manner in which one pool operator by consistent and rigid supervision and control operated a pool to the satisfaction of all concerned. A combination of means were employed, namely (a) reconstruction of structure to control movements of patrons, (b) periodic cleaning of pool, (c) careful laundering of suits and towels and (d) strict regulations. The methods employed here are applicable at every pool.

□

Dogs in Slaughter Houses.—According to the annual report of Dr. E. A. B. Poole, M.O.H., slaughter houses in the Wellington (Somerset, Eng.) urban district are small and hence are less easily kept clean. Dr. Poole continues: "They are not modern in type, and it does not seem to be sufficiently understood that they should be used for slaughtering food animals only, and not as places in which to hang up harness and other temporarily unwanted goods. It is somewhat difficult altogether to exclude dogs, although their undesirability as visitors has been repeatedly pointed out. It is forgotten that they practically always suffer from worms, the eggs of which may develop in human beings and cause serious disease." Dr. Poole adds that whitewashing is carried out regularly, but that it would be much better if the walls were rendered in some impervious washable material.—*Medical Officer,* Jan. 1, 1921. (*H. N. C.*)

Malaria Control in Spain.—By royal decree there has been named a commission to undertake the work of malaria control in Spain. The Spanish Red Cross, assisted by the League of Red Cross Societies and with the support of the medical profession, has offered its services to the government to aid in carrying out this work. Almost 600 communities in Spain suffer from endemic malaria and in even some of the important cities the mortality from malaria is as high as 5% of the total death rate. The work if completely done will eradicate malaria from about 1,000 square miles now considered malarial. It is estimated that the cost of the sanitation of this area will be about 50,700,000 pesetas and that the consequent increase in the value of the land will be something over 100 million pesetas.—*Rev. Int. Croix Rouge,* Dec. 15, 1920. (*H. N. C.*)

□

The Symposium on University Health Measures, including the papers read at the San Francisco meeting of the Association, are scheduled for the April issue of the JOURNAL.

NOMENCLATURE OF TUBERCULOSIS

NATHAN VAN PATTEN,

Reference Librarian, Massachusetts Institute of Technology, Cambridge, Mass.

1—Abdominal phthisis. (1893-Syd. soc. lex.) cf. 54, 108, 111.

2—Acute caseous consumption. Lungs only affected, great rapidity of development due either to virulency of bacilli or low vitality of victim. cf. 40.

3—Acute hydrocephalus. cf. 10, 107, 110.

4—Acute miliary consumption. Whole body as well as lungs studded with tubercles distributed by the blood. cf. 40.

5—Acute miliary tuberculosis. Ibid.

6—Acute phthisis. (Also acute consumption and tuberculosis.)

7—Bat wing's disease. (1876-Trans. clin. soc., IX, 165.)

8—Beinfrass. (Ger.) cf. 12.

9—Bovine tuberculosis. Of cattle.

10—Brain fever. As far as due to bacillus tuberculosis.

11—Carie. (Fr.) cf. 12.

12—Caries. Of the bones. (1634—T. Johnson, Parey's Chirurg., XIX, 27.)

13—Cheradi. (Ital.) cf. 75.

14—Choirades. cf. 13.

15—Con. (Vulgar.)

16—Consomption pulmonaire. (Fr.) cf. 65.

17—Consumcioun. (1450—Trevisa's Barth. De R. P., VII, XXX, 1.)

18—Consumpcion. (1494—Fabyan. Chron., VII, 437.)

19—Consumpcyon. (1450—Trevisa's Barth. De R. P., VII, XXX, 249.)

20—Consumption. (1651—Witte, tr., Primrose's Pop. err., II, 88.)

21—Consumptions. (1578 — Lyte. Dodoens, L, XLIX, 71.)

22—Consunzione. (Ital.)

23—Crewels. cf. 75.

24—Cyrneles. (1000—Sax. leechd., III, 62.) cf. 75.

25—Decline. (Popular)

26—Dépérissement. (Fr.)

27—Dust phthisis. Not tubercular.

28—Ecrouelles. (Vulgar French.) cf. 75.

29—English consumptions. (1732—Arbuthnot. Aliments, rules of diet. 386.)

30—Escroeles. cf. 75.

31—Escrófula. (Sp.) cf. 75.

32—Escrofulosis. idem.

33—Escrofulismo. idem.

34—Excrementious humours. (1634—T. Johnson. Parey's Chirurg., XIX, 27.) cf. 75.

35—Fibro caseous tuberculosis. Usual form of pulmonary tuberculosis.

36—Fibroid phthisis. cf. 35, 37.

37—Fibroid tuberculosis. idem. Areas of lungs converted into fibrous masses, which are really scars of previous disease, that has undergone nature's cure. cf. 35, 36.

38—Foulness of the bone. (1655—Culpepper. Riverius, II, XV, 89.) cf. 12.

39—Fressende flechte. (Ger.)

40—Galloping consumption. cf. 2, 4.

41—Gangole. (Ital.) cf. 75.

42—Gavine. idem.

43—General tuberculosis. cf. 4.

44—Hectisie. (Fr.)

45—Humeurs. (Fr.) cf. 34, 53, 75.

46—Intestinal tuberculosis. (1893—Syd. soc. lex.) cf. 54, 108, 111.

47—King's evil. (1670—Phil. trans., V, 2080.) cf. 75.

48—Kinges Euill. (1625—Lodge. Poore mans talentt., 1881, 13.) ibid.

49—Knochenfrass. (Ger.) cf. 12.

50—Kyrnelles. (1541—Copland, tr., Guydon's Quest. chirurg.) cf. 24.

51—Lungenschwindsucht. (Ger.)

52—Lupum. (1400—Lanfranc's Chirurg., 208.)

53—Lupus. (1590—Barrough. Meth. physick., 331.) Of the skin, var.—erythematosus (?) and vulgaris.

54—Peritoneal tuberculosis. (1893—Syd. soc. lex.) cf. 46, 108, 111.

55—Phthisie. (Fr.)

56—Phthisis. (Φθίσις) = wasting, (Gr.) Hippocrates. (1543—Traheron, Vigo's Chirurg., 1586, 448.)

57—Phthisis pulmonaria. (1857—Duuglison. Med. lex.)

58—Phthisis vesicae. (1846—G. E. Day, tr., Simon's Anim. chem., II, 92.)

59—Phthysis.

60—Pthisis.

61—Ptisike. (1450—Trevisa's Barth. De R. P., VII, XXX.)

62—Ptism. (1527—Andrew Brunswyke's Distyl. waters. Dj.)

63—Ptisym. (1525—tr. Brunswyke's Surg. 1., IIJ, b/2.)

64—Pulmonary consumption. (1727—41. Chamber's Cycl.)

65—Pulmonary phthisis. (1873—Green. Introd. pathol., ed. 2,300.)

66—Pulmonary tuberculosis.

67—Pulmonia. (1844—W. Irving. Life and letters, 1866, III, 320.)

68—Schrophula (1694—Salmon Bates. Dispens. 1713, 411/1.)

69—Schwindsucht. (Ger.)

70—Scrofula. (1843—Graves. Syst. clin. med., XX, 248.)

71—Scrofellas. (Popular Latin.)

72—Scrofelles. (1000—Sax. leechd., III, 62.)

73—Scroffles. (1576—Baker. Jewell of health, 1597, 144.)

74—Scrofola. (Ital.)

75—Scrofula. Of the lymphatic glands.

76—Scrofulæ (1670—Phil. trans., V, 2080.)

77—Scrofules. (Fr.)

78—Scrofulous swellings.

79—Scrofulus.

80—Scrophula. (1791 — Boswell. Johnson.)

81—Scrophulas. (Lanfranc. Cirurg., 207.)

82—Scrophulæ. (1625—Lodge. Poore mans talentt, 1881, 13.)

83—Scrophule.

84—Scrophules. (1483 — Caxton. Golden legend. 243/4.)

85—Scruphules.

86—Scrufulose. (Ger.)

87—Scurffyls. (1400 — Lanfranc. Cirurg. 19.)

88—Skorphillys. (1400-50. Stock. Med. ms. 41.)

89—Skrofeln. (Ger.) cf. 75, 86.

90—Skurfula.

91—Struma. see Scrofula.

92—Strume. (Fr.) cf. 91.

93—T. B. (Vulgar.)

94—T. B.'s. (Vulgar.)

95—Tabes. (Formerly applied also to locomotor ataxia.)

96—Tabes mesenterica. Of the glands in the abdomen.

97—Yaxotka. (Russian) Tchachatka.

98—Tisichezza. (Ital.)

99—Tisi. (Ital.)

100—Tisis. (Sp.)

101—Tisik. (1400—Lanfranc. Cirurg., 164.) cf. 56.

102—Tissick. (1607—Topsell. Four. f. beasts., 1658, 536.)

103—Tissicks. (1656—Earl. Monm., tr., Bacalini's Advts for Parnas., 41.)

104—Tuberculose. (Fr.)

105—Tuberculose pulmonaire. (Fr.) (Ann. de 1. inst. Pasteur. XIX, 10.)

106—Tuberculosis. (1860—Tanner. Pregnancy, II, 48.)

107—Tubercular cerebral meningitis. cf. 3, 10, 110.

108—Tubercular peritonitis. cf. 1, 54, 111.

109—Tuberculous adenitis. (1899—B. med. j., Aug. 19, 1899.)

110—Tuberculous meningitis. cf. 3, 10, 107.

111—Tuberculous peritonitis. cf. 1, 54, 108.

112—Tysyc. (1551—Turner. Herbal., I, Fiv., b.)

113—Tysyk. (1340—Hampole. Pr. consc., 701.)

114—Wasting disease. (Popular) cf. 25.

References to early English literature from Murray's New English Dictionary.

COMPARATIVE STUDIES OF DIPHTHERIA CULTURES OF LOEFFLER'S MEDIUM WITH THE ORIGINAL SWABS TRANSPORTED BY MAIL

C. C. Young and Minna Crooks,
Bureau of Laboratories,
Michigan Department of Health,
Lansing, Mich.

Read before Laboratory Sections, American Public Health Association, at San Francisco, Cal., September 13, 1920.

Swabs and cultures prove to be of equal value for diphtheria diagnosis while swabs may give evidence of other infections. This paper tells of an experiment in routine work lasting a year. It shows swabs to be less costly, never dry through storage, and better for surveys. The paper emphasizes the need of rural branch laboratories.

FOR many years it has been the practice of state health departments and city boards of health to send out Loeffler's culture media for the collection of material for the diagnosis of diphtheria.[1] It has been considered bad practice to ship the original swabs to a laboratory for diagnosis. We have always supposed that desiccation and the lack of food greatly reduced the viability of the Klebs-Loeffler bacillus. When we took over the diagnostic work of the Michigan Department of Health, the sending out of swabs to doctors and health officers was the routine procedure. As a matter of administration, the question of change was immediately brought up. While considering the problem, our diagnostic results were so satisfactory that we thought it advisable to make a rather careful study of the swab as a means of transporting cultures from throats. The distribution and storage of outfits in homes of physicians and health officers and the expense to our organization were discussed. The time element in reporting laboratory examinations was also considered. The time in transit and viability of organisms on swabs and culture media were compared. We soon observed that it was possible under the conditions with which we were working in Michigan to make diagnoses of infections other than diphtheria on swabs sent to the laboratory.

We adopted as a routine procedure the following: Immediately upon arrival at the laboratory, a smear is made from the diagnostic swab. All swabs are streaked on blood plates (media 1.5 agar, neutral to phenophtalein, 5% human blood) and cultured on Loeffler's blood serum. After 16 to 24 hours incubation (depending upon growth and mail arrivals) smears are made from culture tubes and stained with alkaline methylene blue. The plates are studied for the different groups of streptococci and for the growth of Klebs-Loeffler bacilli. (See Table 1 routine cultures, August 1, 1919, to August 1, 1920.) From 11,104 swabs submitted for diagnosis we returned 1182 positive diphtheria diagnoses and 2572 positive hemolytic streptococci diagnoses. In 189 cases Klebs-Loeffler bacilli were demonstrated in direct smears from swabs which were one to four days in transit. In our routine examination of diagnostic

[1]Report State Board of Health, Minnesota, 1899-1900. F. F. Westbrook, M. D. p. 594.

swabs Vincent's angina was reported in many instances.

We introduced the use of the blood plate, for the prevalence of streptococci infections at the army camps led us to believe that soldiers returning to civilian life would in many instances be carriers of virulent streptococci.[2] This procedure resulted in collecting valuable information on the seasonal prevalence of certain strains of streptococci and their etiological significance. The practice of making a blood plate at the time the Loeffler's was inoculated not only differentiated septic sore throat, but saved a day in the isolation of the diphtheria bacillus for virulence tests and gave a check upon the Loeffler's media, for in many cases the Klebs-Loeffler bacillus was recovered from the plate when the Loeffler's media was negative.

The blood plate in conjunction with the Loeffler's demonstrated the interesting fact that many strains of *B. Diphtheriae* had the power of hemolyzing blood. The limited literature on this subject indicated that the power of hemolysis was associated with virulence.[3] As yet we have not been convinced of this, for hemolytic diphtheria bacilli have been recovered from carriers and in one instance an avirulent hemolytic diphtheria bacillus was isolated from a suspected contact carrier.

In view of the possibilities for the use of the swab for diagnostic work other than diphtheria, we wished to continue the use of the swab if it gave comparable results with cultures shipped on media. In order to draw intelligent conclusions, we arranged for a group of cultures to be taken from known diphtheria cases, both the swabs and the cultures being sent to the laboratory for

[2]A Symposium on Streptococcus Hemolyticus Carriers. Annals of Otology, Rhinology and Laryngology. June, 1919.

[3]The Bacteriology of Diphtheria. G. H. Nuttall and G. S. Graham-Smith. p. 229.

TABLE I

Routine Cultures, August 1, 1919, to August 1, 1920

Month	Swabs Submitted for Diagnosis: Hemo. Streptococcus +	Hemo. Streptococcus —	Total Streptococci Diagnoses	B. Diphtheria +	B. Diphtheria —	Total Diagnostic Swabs	Swabs Submitted for Diagnosis and Release Showing B. Diph.: Time in Transit: 1 day	2 days	3 days	4 days	5 days	Swabs positive for B. Diphtheria on arrival: Number	Days in Transit
August	14	149	163	43	11	217	69	4	..	..	..	11	1 day
												3	2 days
September	38	110	148	58	62	268	63	21	3	..	..	14	1 day
												9	2 days
												1	3 days
October	76	181	257	181	1002	1440	134	47	16	..	..	28	1 day
												3	2 days
												3	3 days
November	35	212	247	212	1382	1841	240	35	7	..	2	23	1 day
												2	2 days
												1	4 days
December	213	331	544	105	146	795	100	36	12	3	1	20	1 day
												4	2 days
												2	3 days
January	566	1441	2007	190	99	2296	107	92	10	5	..	21	1 day
												5	2 days
												1	3 days
												1	4 days
February	502	511	1013	40	22	1075	57	12	3	2	1	4	1 day
March	530	366	896	49	11	956	33	15	5	8	..	10	1 day
												1	2 days
April	220	160	380	65	10	455	67	5	4	..	..	2	1 day
May	126	216	342	55	12	409	68	19	..	3	..	3	2 days
June	112	117	229	80	39	348	85	49	5	9	..	4	1 day
												1	2 days
July	140	440	580	104	....	684	85	35	4	..	..	9	1 day
												4	2 days
Total	2572	4234	6806	1182	2796	10784	1108	370	69	24	4	190	

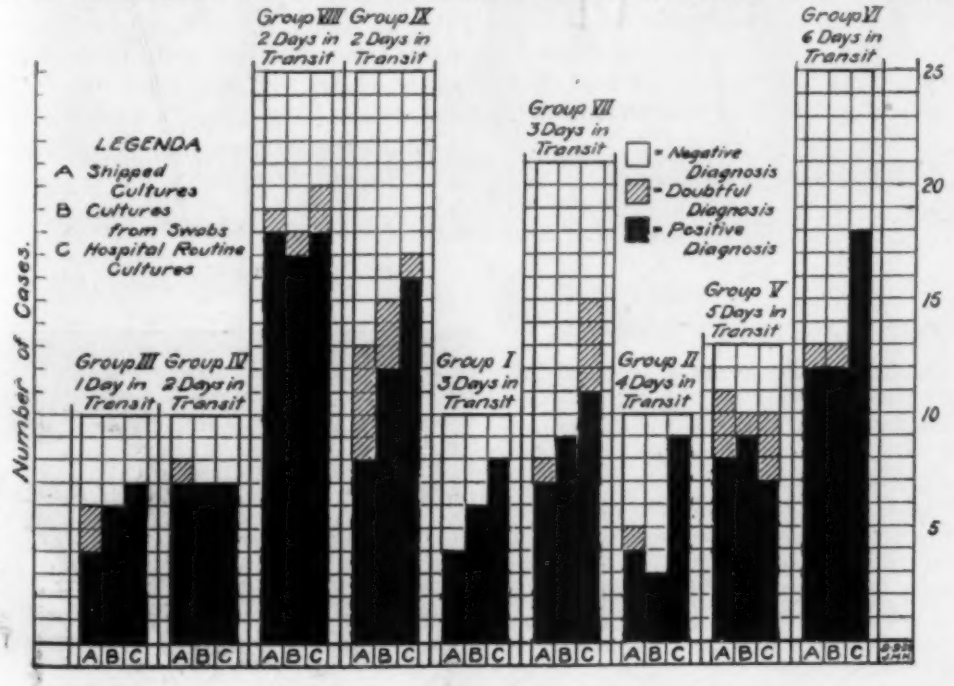
comparative examination. Dr. R. W. Pryer, Director of Laboratories for the Detroit Department of Health, agreed to furnish from the Herman Kiefer Hospital a series of 148 cultures for this study. Two swabs were taken from the cases at the hospital. Two Loeffler's tubes were inoculated from one swab. The other swab was mailed to the Michigan Department of Health at Lansing, with one of the inoculated cultures. The other culture was incubated at the hospital and examined after ten hours incubation. The technique of handling each group of cultures was varied according to condition of growth upon receipt. (See Plate 1.)

A diagnosis was made in 18 hours upon both swabs and cultures in Group III which was 24 hours in transit. Group IV was 48 hours in transit and cultures showed no growth on arrival. Diagnosis was made in 23 hours on both swabs and cultures. Groups VIII and IX were 48 hours in transit. Diagnosis was made on cultures on arrival, on swabs at the end of 18 hours. The diagnostic value of the cultures, however, was less than that of swabs as shown by pictogram. The 3 day groups were VII and I. The cultures were examined on arrival and were not equal in diagnostic value to the cultures from the swabs. Cultures from Group II, four days in transit, showed scant growth on arrival and after incubation. The viability of organisms was practically the same on swabs and culture media. The 5 and 6 day groups showed marked overgrowth, but swabs and culture media had about the same diagnostic value.

As illustrated by tabulation of routine cultures, a large proportion of our swabs are one day in transit, and a very small per cent exceed two days. Since we observed in our work with the Detroit

Plate I

A COMPARISON OF THE DIAGNOSTIC VALUES OF SWABS AND CULTURES



Health Department that growths on cultures, one or two days in transit, were either absent or very scant, it would be necessary to incubate all cultures before diagnosis could be made. Consequently we would save no time in substituting culture media for swabs. The results of this study show the swab to be fully equal in number of positive diagnoses to the shipped culture. Neither the shipped culture nor the swab gave as many positive diagnoses as were obtained by immediate incubation at the hospital. One hundred and forty-eight different diphtheria cases is, of course, a relatively small group, but sufficient, we believe, to illustrate these points, as we had some of the cultures and swabs in transit as many as six days. It should be noted at this point that a central state laboratory is very greatly handicapped in making a diagnosis on which to base treatment. Examination of mailed cultures should be primarily for public health administration, *i. e.*, the control of releases and the isolation of carriers. Until branch laboratories have been established in rural districts, it will be necessary for physicians to give antitoxin on clinical diagnoses, as even twenty-four hours in transit is too long to wait for a positive diagnosis on which to base treatment.

CONCLUSIONS

1. The diagnostic value of swabs and culture media for diphtheria is equal.

2. The swab has additional diagnostic value for other infections, notably septic sore throat and Vincent's angina.

3. There is no particular saving in time of diagnosis.

4. The swab reduces the dangers of contaminated cultures one-half, for inoculations are made under more favorable conditions in the laboratory.

5. The swab eliminates the use of dry or contaminated media that has been stored in the doctor's office.

6. The use of the blood plate gives duplicate cultures.

7. The blood plate saves one day in the isolation of the organism for virulence test.

8. The swab is more practical in school surveys.

9. Our procedure permits of the use of improvised swabs.

10. Not the least of factors that have influenced us in continuing our use of the swab is the cost. Our records show that we sent out during the year July 1, 1919, to June 30, 1920, approximately 23,000 swabs and had returned approximately 14,000, showing a loss of 9,000. Had we lost 9,000 swabs and 9,000 tubes of culture media, it would have amounted to a loss of $540.00 to the organization.

□

MAKING AN ACQUAINTANCE

Readers of the JOURNAL have already seen how the public health nurse makes herself welcome at the houses of the people. A third picture in this series furnishes information as to how she approaches the children. Here is a little one, evidently of foreign parentage, who is quite ready to be friends. These photographs were furnished through the courtesy of Florence Swift Wright, whose recent untimely deaeth was a shock to all who knew her.

One of the striking conceptions of the Child Health Organization carrying health precepts not only to the kiddies, but to sober, serious grown-ups.

CHO CHO Says
THESE ARE *the* RULES *of the* GAME
A full bath more than once a week.
Brushing the teeth at least once every day.
Sleeping long hours with windows open.
Drinking as much milk as possible, but no coffee or tea.
Eating some vegetables or fruit every day.
Drinking at least four glasses of water a day.
Playing part of every day out of doors.
A bowel movement every day.
CHILD HEALTH ORGANIZATION OF AMERICA
156 FIFTH AVENUE . . . . NEW YORK

EDITORIAL SECTION

AMERICAN JOURNAL OF PUBLIC HEALTH

Publication Office: 124 W. Polk Street, Chicago, Ill.
Editorial Office: 169 Massachusetts Ave., Boston, Mass.

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THE HEALTH CENTER

The health center movement is a plant of exceedingly recent growth. Wherever it may have originated, the fundamental idea is so practical that everyone who heard of it recognized its value, and in many different places it was seized upon as affording a solution for existing difficulties. With the initiative and energy characteristic of Americans the idea has been developed, and that other American characteristic, invention, has given it many different forms. These are set forth somewhat in detail in the different articles in the symposium in this issue of the Journal. It will be seen from them that the health center idea covers a variety of administrative methods that range from the simple clinic to the assumption of almost the entire duties of a health department; beyond this into the coördination of local health agencies which until now had been pursuing each its own independent method with more or less success and efficiency; and beyond this, even, to an active agency in prevention through health education of the people.

Early in 1919, the Health Department of the State of New York recognized the potentialities of the health center and in a special issue of its bulletin, *Health News*, presented plans for a municipal health center, together with the history of the movement in the state and the experiences of various cities which had been independently developing their own centers. It offered to help communities in the planning of health centers adapted to their own special needs.

Since that time Norfolk's plans have been formulated, and the drawings of a remarkable future health center are more or less familiar to health administrators. Like the civic center which brings together the executive offices of a city in convenient and architecturally arractive structures, so the Norfolk public health

center plans to bring together in a square of the city the activities relating to health and public welfare. Six important buildings are in this plan; one for administration, one for general medical purposes, a prenatal building, an emergency hospital, a juvenile courthouse and a detention home. The site has already been secured, some progress has been made in the way of construction. This is indeed an ambitious project for a population of not more than 200,000, but illustrates one development of the idea, that of a community believing in the value of good health.

On the West Coast, Alameda County has established its public health center in Oakland, temporarily housed in a building of attractive exterior formerly devoted to medical purposes. Public interest has been excited, however, to the extent of the purchase of a city block in the civic center of the community, and the securing of funds for the erection of a modern building is under way. This is the undertaking of a population of about 350,000, some details of which were set forth in *Modern Medicine* for August, 1920.

A definition of health center, which comes to the JOURNAL from a correspondent in Iowa, declares it to be a "place at which there is institutional health work, such as diagnosis, treatment or dispensary service; at which there is impartible knowledge of the health resources of the community; from which there proceeds out-patient health work such as visiting nursing; all of these services being given either without charge or at such nominal rates as to render them available to the general public." This was a good definition not long ago, but mark how the aspect has quickly changed. In its setting forth of what a health center should be, the American Red Cross now defines it as "an institution from which health radiates rather than an institution to which disease gravitates." Prevention in modern therapy seeks to shut the stable door before the horse has bestirred himself and the modern health center is bound to aid prevention by informing the people of the fact that the door may be shut and telling them how. It stands for team play by many active organizations and should be able to focus on health education the brains of the twentieth century. At the same time it does not forget those who are ill and need the benefits of medical attention.

LET US STOP GUESSING IN HEALTH WORK

It is worth while for health officers to cast an eye over the article entitled, "The Evaluation of Health Activities" by Dr. Charles V. Chapin in the December, 1920, issue of the *Health News*, the monthly bulletin of the New York State Department of Health.

Such evaluation of health functions does not come as a new subject, for it is one that is suggested every time a health officer attacks the annual problem of estimating his budget, but the close consideration of the matter by a health administrator with the experience of Dr. Chapin is always worth while. So rapidly does the point of view change that the technic of yesterday may be below the best scientific standards of today, and yet the supporting public be only in the thought of the day before yesterday.

Dr. Chapin has accomplished the useful service of reducing to figures his evaluations and supporting these by reasons. He makes no claim for perfection; he asserts his values to be tentative, but at the same time it will be an excellent

bit of mental exercise for any health officer to take his items and redistribute them according to his own experience or convictions.

To give it greater attention Dr. Chapin's table is here reproduced. It ranges the activities as part of a total of 1,000 points.

RELATIVE VALUES OF HEALTH WORK

Vital statistics	60
Education	80
Laboratory	50
Control of nostrums	50
Care of sick poor	50
Food	
Adulteration	0
Sanitation	10
Milk	
Adulteration	3
Sanitation	17
Nuisances	
Privy sanitation	60
Housing	20
Plumbing	10
Nuisances	10
Refuse removal	0
Fly and mosquito control	10
Infant Mortality	
Nurses	80
Supervision of midwives	10
Babies' boarding houses	5
Milk stations	5
Consultations	20
School inspection	80
Contagious Diseases	
Home isolation	100
Hospitalization	50
Immunization	50
Venereal diseases	20
Tuberculosis	
Nurses	60
Dispensaries	40
Hospitalization	40
	1,000

There is no claim by the compiler of the table that it will fit all conditions of climate, population, congestion, or race factors. In the South mosquito control may be worthy of a higher rating; in the well-sewered city fly control may be almost negligible. He does advance it, however, as an estimate from which to make a beginning of a reasonable group of ratings. "Every effort should be made," he writes, "to stop guessing and to go to measuring results."

In the JOURNAL for June, 1919, page 436, there was presented the scoring of health activities in New York State devised by Dr. F. M. Meader and Dr. Paul B. Brooks. It likewise makes no claim for perfection, but was compiled with the best light available for actual use in making surveys of cities in New York. This evaluation has also a total of 1,000 points and the values for each activity are given in the following table:

1.	Communicable diseases.		
	A. Tuberculosis	60	
	B. Other than tuberculosis.	80	
2.	Laboratory facilities	80	
3.	School inspection	85	
4.	Infant and maternal welfare.	90	
5.	Milk and food inspection	80	
6.	Water supply	90	
7.	Sewage, garbage and manure	80	
8.	Record keeping	90	
9.	Public health education	100	
10.	Appropriation	100	
11.	Enforcement of regulations	20	
12.	Special work along new or unusual lines	35	

More recent than the evaluation of Dr. Chapin is that of the U. S. Public Health Service set forth in Public Health Reports for January 14, 1921. It has been prepared by Robert Olesen, Surgeon, U. S. P. H. S., and takes the form of a regular score card. Its ratings in the original are on the basis of 100 points, but for comparison with other evaluations the figures are multiplied by ten.

SCORE CARD—FOR SCORING THE EFFICIENCY OF LOCAL HEALTH OFFICERS' ACTIVITIES

1.	Communicable diseases	180
2.	Laboratory diagnosis	100

3.	Education of public	80
4.	Vital statistics	70
5.	Coördination of extraneous health agencies	60
6.	Concurrent disinfection	60
7.	Infant and maternal welfare work	60
8.	Public health nursing	50
9.	Control of water supplies	40
10.	Inspection and control of milk supplies and dairies	40
11.	Occupational disease: Prevention and control	40
12.	Medical inspection of school children	40
13.	Mental Hygiene	30
14.	Control of various preventable diseases	30
15.	Clerical work	30
16.	Sewage disposal	30
17.	Attendance at conferences	30
18.	Food and meat inspections	10
19.	Inspection of public buildings	10
20.	Terminal fumigation	5
21.	Investigation and abatement of nuisances	5
		1,000

To a considerable extent the three ratings are comparable. For example, here are a few items:

	Chapin	N. Y.	U. S. P. H. S.
Public health education	80	100	80
Vital statistics	60	90	70
School inspection	80	85	40
Food and milk inspection	30	80	50
Water supply	0	90	40
Sick poor	50	0	0
Special work	0	35	0
Occupational disease	0	0	40

The comparison is of instant value in showing agreements and variances of opinion among the expert. There are certain matters like public health education that everyone today considers of high value. School medical inspection is valued more highly by local officials than by Government men, while the last three items exhibit each one a factor the importance of which has impressed itself on one of the experts but not on the others. Dr. Chapin believes that the sick poor under the care of a civil board are likely to receive a minimum of attention, whereas they may be a health risk to the community, and should be cared for by the health department; Dr. Brooks believes in an open mind towards new and promising suggestions; while Dr. Olesen has had brought to his attention the value of prevention of occupational diseases.

Such discussions as these show that another of the haphazard methods in health administration is under consideration and the experience of the past leads to hope that this important question of the rating of health department activities will be widely and systematically discussed.

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See JOURNAL for April for Symposium on Health Measures in Universities. Symposium on Mental Hygiene will follow in another issue.

WILLIAM CRAWFORD GORGAS

SO much has been written about the life and work of General William Crawford Gorgas, that whatever the writer may say will be much like repeating in new words, facts that are already well known.

Intimacy with such a man does not always lead to ease in speaking or writing of his personality or of his work, for there may be feeling that represses rather than causes an easy flow of words.

Intimate association for more than 13 years, with this, the most knightly man that I have ever known, leaves me when I hear others speak of him, almost dumb. I listen, I think of him, of the great things he has accomplished, and accomplished in the face of opposition and of a disbelief in him and in his methods, and finally of the acknowledgment by many of these who had opposed him that he was right,—of the adoption of his methods by men and nations, of the lives he has saved, of the men yet unborn who because of his teachings will be conserved to the world, and finally of his end, while he was yet able to give to the world a service that would benefit mankind.

He was freeing the world from yellow fever, a disease that has taken its toll from both hemispheres, that has been epidemic for centuries in Central and South America and in the West Indies; a disease that has paralyzed commerce and has caused panic and disaster in the Southern States; a disease, which as a result of the practical application by General Gorgas of the discovery by the Reed Board that yellow fever is transmitted by a mosquito, and by only one mosquito, the *Stegomyia fasciata,* is now confined to a few endemic and epidemic centers, and which in five years will be eliminated. from the earth.

General Gorgas was born at Mobile, Alabama, October 3, 1854, the son of General Josiah and Amelia Gayle Gorgas. He was educated in private schools until he entered the University of the South, graduating with an A. B. degree in 1875. Deciding to study medicine, he entered Bellevue Hospital Medical College, graduating in 1879. He served as an interne, 1878-80, and was commissioned as a First Lieutenant and Assistant Surgeon in the Army, June 16, 1880. His first assignment to duty was at Ft. Clark, Texas. In the fall of 1882 he was ordered to Fort Brown, Texas. Here he had his first professional experience with yellow fever, then epidemic on the Mexican Border. This experience with this scourge so early in his career largely influenced his future. The mystery of its spread and its deadly nature appealed to his imagination, and he lost no opportunity to study this disease. and such opportunities were not infrequent for those who served at any of the stations located in the Gulf States, where yellow fever was from time to time epidemic. His cases were always carefully observed. Methods of treatment, hypotheses regarding the transmission of infection from man to man, and the various methods proposed for the control of epidemics, were studied and tested. All that he learned, or a supposition disproved, was a stimulus for greater effort. Further observation was temporarily interrupted in the Fall of 1884 by reason of his transfer from Fort Brown to Fort Randall, Dakota.

On June 16, 1885, he was promoted to the grade of Captain and Assistant Surgeon. On Sept. 15, 1885, he married Miss Marie Cook Doughty of Cincinnati. Opportunity to resume the study of yellow fever came with his transfer to Fort Barrancas, Fla., where he served, with the exception of an 18-month tour of duty at Fort Reno, until the war with Spain. Shortly after the outbreak of the Spanish-American war he was appointed Major and Brigade Surgeon. A vacancy in the regular service permitted of his promotion July 6, 1918, to the grade of

Major and Surgeon in the regular establishment.

General Gorgas went to Siboney on the Hospital Ship Relief, and was present during the entire Santiago campaign. He established and was in command of the yellow fever hospital at this place. He was invalided to the States after the occupation of Santiago, because of a severe malarial infection. After convalescence, he returned to Cuba, and was made Health Officer of Havana.

Here yellow fever was epidemic as it had been almost continuously since 1620. Havana was cleaned, one might say scrubbed and disinfected, but yellow fever remained. Case after case was found. No method tried served to lessen the incidence of the disease. The Reed Board was investigating theories advanced regarding the etiology of that disease. Their work was notable in proving that none of the etiological factors claimed by their sponsors was the true cause of the disease. The claim put forward by Dr. Carlos Finlay in 1881, that the *Stegomyia fasciata* was the agent by which the yellow fever virus was transmitted from man to man alone remained. On Feb. 6, 1901, in a paper read before the Pan-American Congress at Havana, a skeptical world was told that the theory of Finlay was a proven fact. There were many who questioned the findings of the Reed Board, but their experiment had been so carefully controlled and conducted with such mathematical precision that those who questioned succeeded in only confirming the accuracy of the findings. The elimination of yellow fever could now be undertaken on a definite basis, that of the control of Stegomyia breeding and reducing the Stegomyia index below a point capable of supporting an epidemic. Here was the opportunity that General Gorgas had been looking for, and hoping for, for years.

The eradication of the disease was simple in theory, but in reality, a task of magnitude. It meant house to house inspection, the location of all breeding places, the listing for future reference of all cisterns, tanks, wells, waterbarrels, fillers, water jars, in fact every container that would hold water and in which Stegomyia would breed. It meant the mosquito-proofing or the destruction of all possible breeding places. There were no trained inspectors for the work. They must be trained, while on the job. These inspectors were not kindly received; they were looked upon with suspicion, and their presence was resented. They had to fight ignorance and prejudice and meet the hostility of the householder with forbearance, tact, and judgment, a trying and thankless task.

The containers were found; the cisterns, tanks, wells, etc., either destroyed or made mosquito proof. Houses had to be fumigated to kill infected mosquitos, for the Stegomyia is a long-lived insect and once infected is infectious to man for as long as she lives. The task was accomplished; yellow fever was eliminated from Havana. The last case was reported on September 28, 1901.

Malaria was a disease that also took a large toll from those living in certain sections of Havana. The fact recently proven that certain of the Anophelene mosquitoes were responsible for the transmission of the malarial parasite from man to man was utilized. So hand in hand with the elimination of yellow fever from Havana went the reduction in the incidence of malaria. The measures against Anopheles finally reduced the malarial index to an almost negligible quality, and made healthful areas of what for generations had been uninhabitable.

The work of General Gorgas at Havana was so notable, that Congress showed the appreciation of the whole country, when on March 9, 1903, an act was passed promoting him to be a Colonel and Assistant Surgeon General. Having completed his work in Havana he was assigned to duty as Chief Surgeon of the Department of the East, with station at Governors Island, and re-

mained there until he was appointed Chief Sanitary Officer of the Panama Canal by President Roosevelt, March 1, 1904. Here was a task worthy of the man and a man equal to the task.

There were many natural difficulties to overcome, and much opposition both active and passive to meet. There was disbelief in the fact that yellow fever and malaria were transmitted by mosquitoes. This resulted in disbelief in the man and in his methods. In those early days a man less determined would have been not only discouraged but dismayed. His removal was desired; his recommendations held up and criticised, even characterized as "wild." All this did not hasten the accomplishment of the task but rather delayed it. The vicissitudes of the Department of Sanitation during this period are a matter of history as any one interested may see by reading the "Report to the Government, by Dr. Chas. A. L. Reed. Showing how the Commission makes Efficient Sanitation Impossible," published in the *Journal of the American Medical Association*, March 11, 1905, p. 812; also the "Reply of the Commission to the charges made in the Report to the Government by Dr. Chas. A. L. Reed," published in the same Journal, April 1, 1905, p. 1052. The fact remains that after this report matters affecting sanitation received more consideration, and recommendations were more promptly acted upon than previously. President Roosevelt with his usual keen understanding of men and methods was the force that upheld General Gorgas during those trying days and made success possible.

Malaria, yellow fever and dysentery, were the three diseases that caused the greatest morbidity and mortality among employees of the French Canal Company and the natives on the Isthmus. The climate was considered deadly, the whole region had a most sinister reputation. The "Forty-niners" crossing the Isthmus had died in great numbers. Fevers and dysentery during the period of the construction of the Panama Railroad had taken an enormous toll from the forces employed. It has been stated that each cross tie represented a life sacrificed in the construction of the railroad. One town on the line of the Canal was said to have derived its name, Matachin, because of the awful mortality of the Chinese laborers quartered there. Neither of the statements are strictly true; they are quoted for the purpose of emphasizing the awful unhealthfulness and evil reputation of the Canal Zone and the cities of Panama and Colon, the regions that must be made healthful.

The death rate of the employees of the French Canal Company has never been known with any degree of accuracy, all statistics being based on the deaths that occurred in hospitals only. The hospitals received patients sent in by contractors or the individuals who entered on their own responsibility. Under the French there was no free general hospitalization of employees as during the construction of the Canal by the United States. Because of this lack of general hospitalization, deaths occurring on the line of the Canal and in the cities of Panama and Colon never appeared in the statistical tables of the French Company. The hospital rate of 65 per 1,000 per annum is given as the rate of deaths for employees of the French Company, and it is on this basis that all comparison of French and American statistics are based. The French rate of 65 per 1,000 per annum was high enough to be embarrassing, but a competent observer who lived in Panama during the days of construction by the French and who was in a position that gave him an intimate knowledge of actual conditions told General Gorgas that the French losses were not less than 250 per 1,000 per annum. Allowing that a death rate of 250 per 1,000 per annum is too high, the rate of 65 per 1,000 is undoubtedly too low. The true rate will never be known. It was so high, however, that only by great

effort was it possible to keep the working force recruited up to a point of efficiency, that is, to obtain the average output with the equipment provided.

Many instances are recorded of the almost extinction of groups of employees arriving from France, who being assigned to various stations, took up their work with enthusiasm in the expectation of great accomplishments, but within two or three months 75% would have died, and in some cases even 100%. The death rate among the Catholic Sisters who controlled the hospitals was appalling. Travelers crossing the Isthmus did so at great risk, especially those who from necessity spent the night in either Panama or Colon.

The problem was to make this pest-ridden country a place where men could live at least in comparative safety, especially men from a temperate climate. In fact it was more than this, for in order that these men might be contented and efficient, it was deemed advisable that they should bring their families. If the Canal Zone and the cities of Panama and Colon could not be made healthful to a degree that it would be possible for Americans to live there, the project would have been handicapped by great mortality and increased cost in time and money. Without proper sanitation the great sacrifice of lives would have had its reaction on public sentiment, making probable again the abandonment of the project.

It is estimated that had French conditions persisted instead of those established by General Gorgas, the cost in human lives would have been not less than 20,000.

Those who opposed General Gorgas most strenuously during the early days of his work on the Zone, from an honest disbelief in his methods, methods based on the transmission of yellow fever and malaria by mosquitoes, later acknowledged their error. I heard one former official say to General Gorgas that they had been wrong, and that had their action resulted in his removal, as they desired, a great calamity would have resulted.

Statistics are as a rule uninteresting, but no one can fail to feel a real interest in the statistical tables published by the Department of Sanitation, Isthmian Canal Commission. These statistics tell the story of a lessening number of deaths, the story of a decreasing sick rate, and fewer days spent in hospitals, all this with an increasing population;—a saving that paid, and more than paid, for all the moneys charged against the Department of Sanitation. The cost of sanitation has been criticized, but no attention has been paid the credit side of the ledger. Is it not proper to credit sanitation with the lessened sick rate and the lives saved? Divide the cost of sanitation by the one item of lives saved, the answer will be an answer to critics. There are other credits that may be considered that directly and indirectly bring their return to the United States. What of the great object lesson in sanitation—a lesson learned by the rest of the world? Other countries applied the methods practiced by General Gorgas. Especially did South America begin to "clean up."

Sanitation, the same as that practiced in Cuba and on the Canal Zone, freed some of the greatest ports of South America from yellow fever, and reduced the incidence of malaria: it made travel safe; it lessened quarantine restrictions, and in some instances caused the entire removal of all quarantine, results that were of great benefit to trade.

General Gorgas taught the world that the tropics were not of necessity the deadly region they had always been considered; that with proper methods, those diseases, fatal to the native as well as the man from the temperate climate, could be eliminated, and once eliminated, they would not re-occur unless imported from some infected area. This fact forced unprogressive countries to improve sanitary conditions, to oust yellow fever and malaria. For if those coun-

tries wished to keep up with the commercial development of the world and obtain their fair share of the world trade, they must control communicable disease, if not with the view of conserving life, then from the viewpoint of commerce.

The first three years of General Gorgas' work on the Canal Zone as Chief Sanitary Officer was in a subordinate capacity. The Department of Sanitation was not an independent department, but merely a branch of the Department of Government and Sanitation. On March 1, 1907, President Roosevelt appointed General Gorgas a member of the Isthmian Canal Commission and head of the Department of Sanitation. This was a recognition of results accomplished, a triumph of the man and of his methods. So conspicuous was General Gorgas' success in converting the Canal Zone and the cities of Panama and Colon into a region where the death rate was comparable to that of our healthiest cities, that sanitarians came from all over the world to see and learn; and returned to their homes with valuable data and new ideas. So impressive were his results that he received many invitations to advise corporations and countries on matters of health and sanitation. Two were accepted. The first was an invitation from the President of Equador to study the health conditions of Guayaquil, and submit outline plans for the sanitary reconstruction of that city, the principal seaport of the Republic. Almost two months were spent in Equador, during which time tentative plans were prepared and recommendations submitted. The plans provided for adequate water supply, sewer system, paving the streets, modification of health laws, and the revision of building regulations, with especial reference to "rat proofing." His general plan was adopted and much work has been done. Guayaquil has for almost two years been free from yellow fever, and malaria incidence has been much reduced. At the time of General Gorgas' visit to Equador, the death rate for Guayaquil was such that the city of almost 90,000 people must be repopulated each 15 years or cease to exist. The result of his visit is that one of the most unhealthy cities of the world is now a city with a death rate comparable to that of other tropical cities of the same size.

In the Summer of 1913, Mr. Samuel Evans, Chairman of the Chamber of Mines, Johannesburg, Transvaal, visited the Canal Zone, to make inquiry in regard to the housing conditions of the laborers and the methods used for the control of pneumonia, a disease at one time epidemic among employees of the Panama Canal. The control of pneumonia was a matter of great importance to the mine owners of South Africa, as the native laborer was very susceptible to that disease, especially the tropical native. Among this class of laborers, pneumonia was very fatal; in fact so high had been the death rate from this cause, that the Bureau of Native Affairs had prohibited the employment in the mines of natives from Tropical Africa. This closed a source that supplied each year about 20,000 laborers. A further restriction of recruiting areas was possible if the incidence of pneumonia could not be lowered. This was a very serious matter, for the mines required over 200,000 laborers on the rolls to keep up the average output. As a result of Mr. Evans' visit to the Canal Zone the Chamber of Mines invited General Gorgas to visit the Rand and investigate conditions with the view of applying the methods that had been so successful on the Canal Zone. The invitation was accepted. General Gorgas sailed from Colon early in October, 1913, for South Africa, and arrived at Johannesburg in November. A preliminary survey of conditions was made. It was soon found that this study would be very much more comprehensive than anticipated, for not only must pneumonia be investigated, but housing, hospitalization, food, tuberculosis, method of recruiting, transportation of recruited laborers to the mines,

and their re-patriation on completion of contract. About three months were spent on this work. A report was submitted and discussed with the Chamber of Mines in open session. Some of the mines that had sufficient "life" to warrant it, adopted General Gorgas' plan. One group of mines employed at General Gorgas' suggestion, a sanitarian, who was given charge of all matters pertaining to health and sanitation. The result justified expectations.

While at Johannesburg, General Gorgas was invited by the Governor of Rhodesia to come to Salisbury, the capital, to give advice as to the control of malaria and discuss the question of blackwater fever, the cause of great morbidity and considerable mortality among the European settlers of Rhodesia. Many farms and a few small settlements were visited, much advice given, several public meetings held, as well as conferences with the Colonial health officers and civilian practitioners. All were eager for information and advice.

While at Salisbury, General Gorgas dined one evening with the Governor. When General Gorgas entered the drawing room the Governor advanced and said, "I am glad to see you, General Gorgas." After greeting the Governor General Gorgas said, "You are mistaken, I am a Colonel." The Governor said, "It is you who are mistaken,—you were made a General yesterday." With this he gave to General Gorgas a news bulletin, announcing his appointment as Surgeon General of the Army, with the rank of Brigadier General.

On completion of the work at Rhodesia, General Gorgas returned to Johannesburg, finished his work on the Rand, and in February sailed for Cape Town for the United States, via England. He arrived in New York the last of March, proceeded to Washington and assumed the duties of Surgeon General of the Army.

His policies on assuming this office were to improve sanitary conditions, build up a reserve of hospital supplies equal to that recommended by the Dodge Commission; reorganize the Medical Reserve Corps, increasing its commissioned personnel to such a point that it would meet the demands of war; to re-organize the Medical Corps upon a basis that had a definite relation to the strength of the Army. These various projects were in process of accomplishment when we entered the World War. The Medical Corps had been reorganized, reserve supplies were in process of accumulation, and there were sufficient officers in the Medical Reserve Corps to meet the first demands of the new army.

On March 4, 1915, he was made a Major General and received the thanks of Congress for service as Chief Sanitary Officer of the Panama Canal.

When the War was declared by the United States against Germany, there were but five officers including General Gorgas on duty in the office of the Surgeon General and about 85 clerks. The force was expanded to more than 200 officers and 1,800 clerks. The Department twice outgrew the quarters assigned and was obliged to move. These moves were accomplished without confusion and with but little delay in the routine of the Department.

During the War, all demands were met, all requisitions filled, a gigantic task accomplished with the minimum delays and maximum efficiency. General Gorgas went to France in the fall of 1918, was present at the battle of St. Mihiel, visited other battle fields, and inspected hospitals and sanitary arrangements of the A. E. F.

He was retired on October 3, 1918, having reached the statutory age limit.

He then associated himself with the International Health Board of the Rockefeller Foundation, of which he was a permanent Director. With the Board he was Director of the Yellow Fever Commission. He spent the greater part

of his time in Central and South Africa, fighting for the elimination from the world of this disease, the accomplishment of which is in sight, there being at this time but few centers where the disease is either endemic or epidemic. On May 8 last General Gorgas sailed from Quebec for England and Belgium, intending in June to go to the West Coast of Africa to investigate past epidemics of yellow fever and to study such cases as might be present at the time of his visit.

He was in Belgium from May 20 to 29 for the purpose of interviewing the Belgium authorities about his proposed visit to the Belgian Congo. He also had an audience with the King of the Belgians, who takes a keen interest in all matters pertaining to health, and especially to tropical sanitation.

During this time the Royal Institute of Public Health, (British) was in session, and the Institute at this meeting bestowed upon General Gorgas the Harbin Medal, awarded for achievements in Public Health. He returned to England on May 29. On the morning of the 31st began his last illness. He was a patient in the Queen Alexandra Nursing Home for Superior Officers. While sick in hospital he was visited by the King who invested him with the Cross and Star of Knight Commander of the Order of St. Michael and St. George.

General Gorgas died at 1:35 a. m., July 4, 1920.

The Royal Society of Medicine planned a funeral service at St. Paul's, but the British Government determined upon a state funeral. On the morning of July 9, the British Government paid its tribute to the man. The honors paid him in death were worthy of the great benefits he had bestowed upon the world, and of the life he had lived.

With many, "the good is oft interred with their bones." A few men, are for their works blessed by their contemporaries; others are remembered by posterity. Seldom does that man live whose works are blessed by his contemporaries and whose memory will be held in reverence by future generations. General Gorgas was such a man. A great man has gone; there is no one upon whom his mantle can fall.

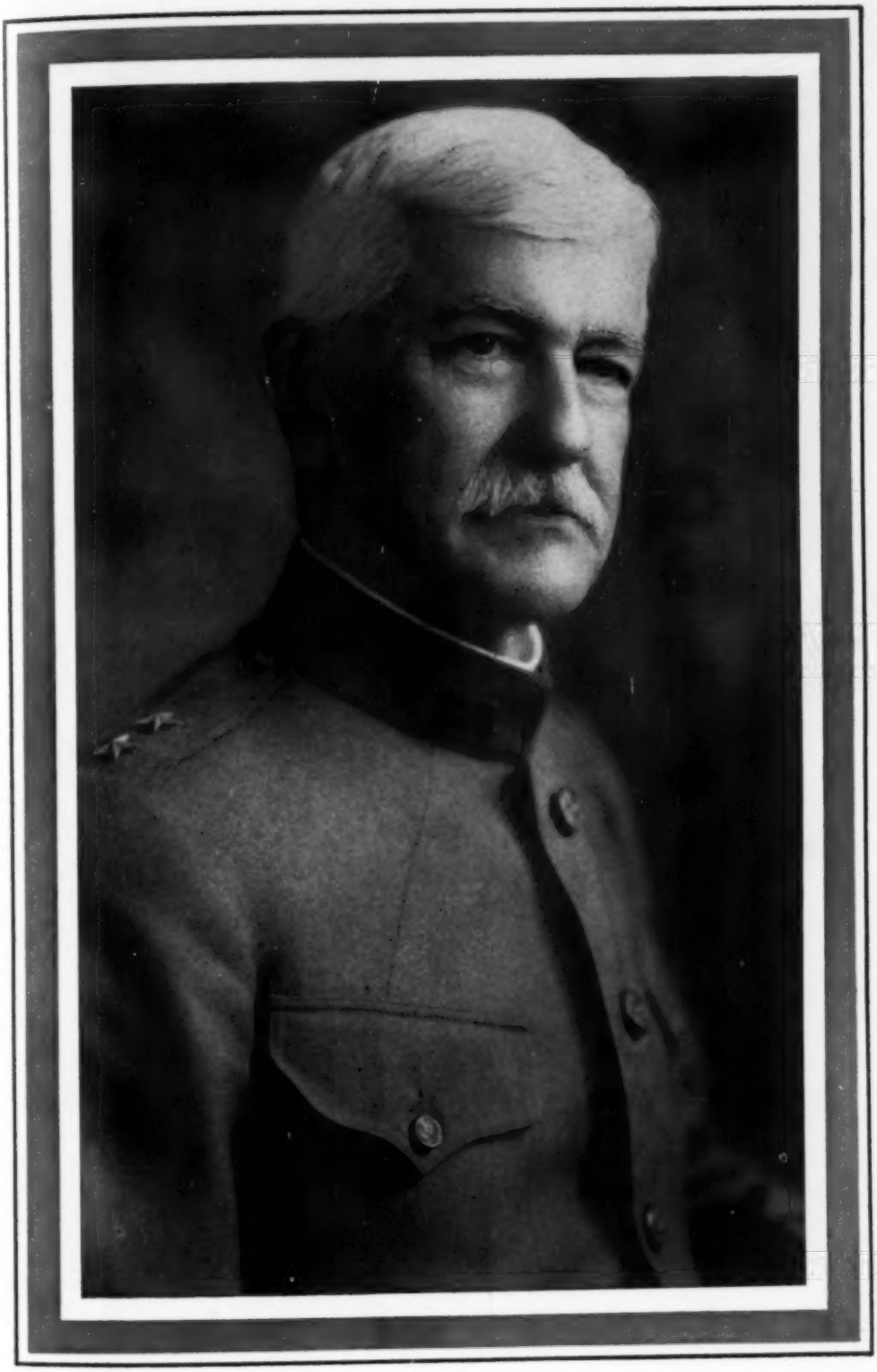
ROBERT E. NOBLE.

BOOKS AND REPORTS REVIEWED

Public Health and Hygiene. *Edited by William Hallock Park, M. D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories, Department of Health, New York City. Philadelphia: Lea and Febiger, 1920. Pp. 884. Price, $10.00.*

The time has passed when any one individual can possess the technical knowledge and personal experience required properly to direct and develop all or even several of the different branches of public health work. It is also true that few if any persons can discuss authoritatively more than one or two of these subjects. Dr. Park has enlisted the aid of eminent authorities in the preparation of this work, each of whom has contributed one or more chapters. It is noted in the preface that the writers have kept in mind that the book is intended for public health officials, physicians and medical students, and each has therefore tried to make his section as practical as possible and to utilize to the full his own personal experience.

A perusal of the table of contents shows that Dr. Park has succeeded in securing the leading authorities to help in the preparation of this book. "Air and Ventilation" by C.-E. A. Winslow, "Epidemiology" by G. A. Soper, "Vitamines" by A. F. Hess, "Personal Hygiene" by E. L. Fisk, "Industrial Hygiene" by L. I. Harris, "Child Hygiene" by S. Josephine Baker, "Public



Health Education" by C. F. Bolduan, "Mental Defectives" by H. H. Goddard, are a few of the topics discussed by persons whose high standing in the public health profession is known to all workers in this field.

The chapter on "Air and Health and Ventilation" by C.-E. A. Winslow is undoubtedly the ablest discussion of this subject extant. The author has brought together in a scholarly manner all the facts bearing on the relation of atmospheric conditions to health and efficiency; the practical methods of ventilation and the examination of the air. Because of the importance of the physiological and economic aspects of food, a chapter is devoted to this subject in which the principles are amplified in order to guide one in directing economies. The preservation and adulteration of food is ably discussed from the practical side. Public health education, the keynote of public health activities, is exceedingly well treated by Dr. C. F. Bolduan, Chief of the Section of Public Health Education in the United States Public Health Service. It is interesting to note that the most recent developments in public health, such as the sanitation of swimming pools, sanitary surveys, personal and mental hygiene each find a place in this book.

The importance of housing to tuberculosis is somewhat magnified. It has repeatedly been demonstrated that tuberculosis is affected only indirectly by the housing situation and that social and economic factors are far more important. The chapters on water supply and sewage disposal are rather sketchy. It is unfortunate that more references to original publications are not given. On the whole, this book is exceptionally well prepared and students of public health and workers in this field will find it very interesting reading. D. GREENBERG.

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Health Letters is the title of Framingham Monograph No. 8, which presents the effort of the Framingham Community Health and Tuberculosis Demonstration to offer important health lessons to the community in popular form. For the last three years the Framingham *Evening News* has carried on Saturday at least one of these short statements, and together they represent the longest continued effort of the kind towards health education in the community. These letters have attracted much attention, and in response to demands for them, this special monograph has been issued. The letters are short and to the point. They begin with the special consideration of tuberculosis, and discuss in popular fashion such topics as, "How Can We Fight Tuberculosis?" with the reply giving the effect of "your personal efforts and mine" in public hygiene, home hygiene and personal hygiene. Other lessons impress the need of the regular medical examination, the fitness of the nation, and take up question of child hygiene and the value of children's health camps. There is a popular statement with reference to vitamines, and others for summer entitled, "Beating the Heat" and "Vacations." There are discussions of the special diseases, what the child can do, value of the garden, not forgetting a few little quips to provoke the smile.

This little book is privately published, and that its valuable lessons may have the widest field, its price has been set at the very modest sum of ten cents by the Community Health Station at Framingham, Mass.

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Take Notice! The Fiftieth Annual Meeting of the A. P. H. A. will be held in New York City, November 14-18, 1921.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the

A. P. H. A.

January 11 to February 9, 1921, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

ARKANSAS

Mary Ann Abel, Little Rock.
H. D. Cullen, Exec. Sec., Ala. Tuberculosis Assn., Birmingham.

CALIFORNIA

Gertrude Whitton, Berkeley.
Olive M. Willoughby, Teacher of Physiology, Berkeley.

COLORADO

M. O. Shivers, M. D., Colorado Springs.
J. J. Mahoney, M. D., Colorado Springs.
Agnes Paulsen, Denver.
Betsie G. Campbell, R. N., Public Health Nurse, Prairie Grove, Ark.
Mrs. Eda May Pine, Public Health Nurse, Pueblo.
Nell F. Notestine, R. N., Ft. Collins.
E. I. Raymond, M. D., Health Officer, Wellington.

CONNECTICUT

Charles F. Congdon, M. D., Mystic.
Louis M. Allyn, M. D., Health Officer, Mystic.
Prof. C.-E. A. Winslow, New Haven.
L. L. Shapiro, U. S. P. H. S., Washington, D. C.

FLORIDA

A. W. Hedrich, Boston, Mass.
John S. Helms, M. D., Chairman, Bur. Public Health, Tampa.

GEORGIA

T. F. Sellers, Atlanta.
M. A. Fort, M. D., Health Commissioner, Brooks Co., Quitman.
V. H. Bassett, M. D., Savannah.
John R. Deully, V. S., Health Officer, Waycross.

ILLINOIS

E. S. Allen, M. D., Arcola.
J. J. Hopkins, M. D., County Sanatorium Board, Hindsboro.
Arthur Lederer, M. D., Chicago.
M. Val Robinson, M. D., A. A. Surgeon, U. S. P. H. S., Chicago.
John Ritchie, Jr., Boston, Mass.
Stella Becker, R. N., Supt. Visiting Nurses' Assn., Decatur.

IOWA

William S. Sturger, Sioux City.
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Ben Carlos Frazier, M. D., County Board of Health, Louisville.
A. W. Hedrich, Boston, Mass.
Beulah E. Aulick, Hygiene Teacher, Ft. Thomas.

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Jefferson Parish Chapter, A. R. C., Atten. Mrs. T. A. Tillotson, Sec., Gretna.

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Hugh M. Young, M. D., Surgeon, Johns Hopkins Hosp., Baltimore.
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Edwin Warren Bullock, M. D., Health Center, Haverhill.
Prof. C. E. Turner, Cambridge.
Harold DeW. Cross, D., M. D., Director, Forsyth Dental Infirmary, Boston.
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Margaret Murphy, R. N., Public Health Nurse, Mobile, Ala.
Ella Dale, R. N., Public Health Nurse, Montgomery, Ala.
Lula A. Davis, R. N., Public Health Nurse, Jackson, Miss.
Sallie Elmore Lawrence, R. N., Public Health Nurse, New Orleans, La.
Mary E. Simpson, R. N., Public Health Nurse, Clinton, S. C.
Sallie E. Gossett, R. N., Public Health Nurse, Woodside, Greenville, S. C.
T. Bessie Smith, R. N., Public Health Nurse, Spartanburg, S. C.
Sarah E. Shotts, R. N., Public Health Nurse, Del Roy, Alexandria, Va.
Margaret M. Davis, R. N., Public Health Nurse, Culpepper, Va.

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J. E. Lopez-Silvero, M. D., City Med. Dept., Havana.
John Ritchie, Jr., Boston, Mass.
Isaac Gonzales Martinez, M. D., Inst. of Tropical Med. & Hygiene, San Juan, Porto Rico.

CANADA

Helen R. Y. Reid, Montreal, Que.
W. A. L. Styles, M. D., Ex. Sec., Child Welfare Assn., Montreal, Que.

REPORT OF COMMITTEE ON MODEL HEALTH LEGISLATION*

The Committee on Model Health Legislation begs to submit the following report. The committee was appointed in March, 1919, and consisted of Dr. W. C. Woodward, Health Commissioner of Boston, Mass., and lecturer in law at Georgetown University; Dr. C. V. Chapin, Superintendent of Health, of Providence, Rhode Island; Dr. Carrol Fox of the United States Public Health Service; Dr. H. B. Hemenway, District Health Officer in Illinois and author of "The Legal Principles of Public Health"; Dr. W. S. Rankin, State Health Officer of North Carolina; Prof. C. E. Turner of the Massachusetts Institute of Technology, and Mr. James A. Tobey of the American Red Cross, Washington, D. C. Drs. Woodward and Chapin found it necessary to resign and their places were taken by Dr. F. E. Fronczak, Health Commissioner of Buffalo, New York, and lawyer, and Dr. W. H. Brown, formerly Health Officer of Bridgeport, Conn., now with the Rockefeller Foundation. The Committee has held four meetings: at Boston, Atlantic City, Providence and Washington. The Committee has prepared a model code with notes and references for the organization of a health department and the control of communicable diseases. January 20, 1921.

MODEL HEALTH CODE

FOREWORD

The following code is presented as a guide for the formulation of a municipal health ordinance. It aims to set up the essential features and fundamentals of the organization of the health department and the control of communicable diseases. The footnotes give explanations and alternative procedures. The person who draws up municipal ordinances should always familiarize himself first of all with the state laws on the subject. The state laws are, of course, superior to the municipal, and no regulation inconsistent with them can be enforced. The charter of the municipality should also be consulted in order to ascertain any powers concerning health regulations contained therein. Since the provisions of state laws on health in this country differ materially with regard to powers conferred on local authorities and the requirements for public health which are laid down, it is not likely that this code can be copied verbatim. The code does attempt, however, to give the correct legal phraseology and to present the most advanced scientific knowledge on the subjects taken up. If this code is copied, the footnotes should, of course, be omitted. At the end will be found references to other model laws and material which is useful in drawing up health ordinances.

CHAPTER I.

ORGANIZATION OF HEALTH DEPARTMENT

Regulation 1. There shall be a health department in the (City of ....., Town of .....) under the direction of a Health Officer.[1] He shall be appointed by the Mayor,[2] subject to the approval of the state health authorities.[3] He shall be subject to removal by the Mayor, but may have a public hearing if he desires. He shall be suitably trained or experienced in public health administration.[4] He shall devote his full time to the duties of his office.[5] He shall execute and enforce all statutes, ordinances, and regulations for the protection and promotion of health and shall take such other action as is necessary for the public health. He shall have the power to appoint and remove, and fix the duties of such other employees as are necessary for the administration of the health department.[6] He shall have the power to fix the salaries of the employees of the health department, subject to the approval of the legislative authorities of the (City of ....., Town of .....).[7]

Notes 1. Since there are about 60 titles now being used for municipal health officials, the Committee recommends that the words "Health Officer" be adopted as the standard.

***Reprints of this report will be available at 15c each; five copies for 50c; special prices for larger quantities. Address the Boston office for prices. The type will be held one month for printing special orders.**

2. The way in which a Health Officer can be appointed depends upon the form of municipal government. The charter or local ordinances already in force may require other methods. Appointment by the Mayor is considered by the committee as the best procedure, however.

3. The Committee believes it desirable that local Health Officers should be licensed by the state department of health, but the requirements of existing state laws will govern this point.

4. The Health Officer should be a person trained in public health administration; preferably, but not necessarily a physician, and preferably a graduate of a college course in public health. In lieu of this he should have had actual experience in public health work. The Committee believes it desirable that legislation tending to make more permanent the tenure of office of health officials and making provisions that they be secured and kept on the merit system without political interference should be promoted.

5. Where a community is too small or where there are other conditions which make it impracticable to employ a full-time Health Officer, it may be possible to create a district of several communities which can unite in the employment of a Health Officer who will give his full time to the district.

6. The method of appointing employees depends on the form of government. It may be already provided for. The Committee recommends this procedure, however.

7. The Committee is of the opinion that all authority in municipal health should be centralized in the Health Officer alone. As an alternative, there may be a public health council, whose duties are purely advisory. Most municipal laws provide for a board of health, but the Committee believes the best administrative procedure requires one man control.

CHAPTER II.

CONTROL OF COMMUNICABLE DISEASES

Regulation 1: **Definitions.**[8]

Note 8. The Committee does not believe any definitions are necessary in this model code as it is drawn up. If definitions are desired or considered necessary, the Committee refers to the Report of the American Public Health Association Committee on Control of Communicable Disease. Reprint 436, U. S. Public Health Service, Washington, D. C.

Regulation 2: **Diseases to be Reported.**[9] The following diseases must be reported:

Actinomycosis
Anthrax
Cerebro-spinal Fever[10]
Chancroid
Chickenpox
Cholera, Asiatic
Dengue
Diphtheria
Dysentery (Amebic and Bacillary)
Erysipelas
Favus
German Measles
Glanders
Gonococcus Infection
Hookworm Infection
Influenza
Infantile Diarrhea
Leprosy
Malaria
Measles
Ophthalmia Neonatorum
Paratyphoid Fever
Plague
Poliomyelitis
Rocky Mountain Spotted Fever
Rabies
Scarlet Fever
Septic Sore Throat
Smallpox
Syphilis
Trachoma
Tuberculosis (all forms)
Trichinosis
Typhoid Fever
Typhus Fever
Vincent's Angina
Whooping Cough
Yellow Fever.

Provided, that the Health Officer may at his discretion require other diseases to be reported.

Note 9. The Committee favors the reporting of diseases only when the Health Officer is to take some action on the reports. Under such conditions, or for statistical reasons, pneumonia, cancer, tetanus, bro-spinal meningitis or meningococcus meningitis, to be reported.

10. This term is the best usage for epidemic cerebro-spinal meningitis or menengococcus meningitis, which is the communicable form of meningitis.

Regulation 3. **Method of Reporting.** Every physician or other person having knowledge of any person affected or apparently affected with any disease specified in Regulation 2 of this chapter shall report to the Health Officer the following data:

Name of disease.

Full name, age, sex, race and exact address of patient.

Exact occupation, place of employment, or school attended by patient.

Name and address of person making report.

Date of report.

Such report shall be made within six hours after the case comes under observation, preferably by telephone. A specimen sent to the Health Officer for laboratory diagnosis and accompanied by the data given above shall be considered as a report.

The term "other person" as used in this regulation shall mean in the absence of a physician any parent, guardian, householder, keeper of a hotel or lodging house, midwife, nurse, school teacher, superintendent of an institution, master of a vessel, owner or manager of a dairy, or other person having under his care or observation a person af-

fected or apparently affected with a communicable disease.

Regulation 4. **General Measures for Control.** The Health Officer or his duly authorized representative shall make such investigation as in his judgment may be necessary to determine the presence or absence of any of the diseases named in Regulation 2 of this chapter and if any such be found he shall adopt such measures as are authorized by law for the prevention of the spread of such disease and for the relief of the patient, and to these ends he or his duly authorized representative may enter any premises where he suspects the presence of any such disease.

Regulation 5. **Laboratory Examinations.** The Health Officer shall secure material for cultures, or specimens for bacteriological or other laboratory examination to assist in determining the diagnosis whenever in his judgment such procedure is necessary, and any person when requested by him shall permit such specimen to be taken.

Regulation 6. **Measures for Control in Schools.** The teacher of any school, college, university or Sunday school, having under his care any pupil who appears to be affected by any communicable disease, shall promptly send such pupil home or separate him from other pupils until examined by a physician. The teacher shall report the case in accordance with Regulation 3 of this chapter.

A pupil who has been excluded from a school, college or university on account of having been affected with or exposed to communicable disease shall not be readmitted to school without a permit from the Health Officer except that in the case of the following diseases the pupil shall be readmitted without a permit after the period shown below.

Chickenpox—after crusts have disappeared from skin.

German Measles—7 days.

Measles—7 days from appearance of rash.

Mumps—2 weeks from beginning of attack.

Whooping Cough—2 weeks after appearance of whoop.

In the event of the presence of any disease as specified in Regulation 2 of this chapter, the Health Officer may cause to be examined any pupils, teachers or other persons employed in the schools, and may take any measures necessary to prevent the spread of disease. All school authorities and employees shall conform to all rules and regulations of the Health Officer for the accomplishment of this end.[21]

Note. 11. The Health Officer should also inform school authorities of the presence of disease, though this provision need not necessarily be included in this code.

Regulation 7. **Methods of Isolation in Various Diseases.** Every person suffering from any of the diseases mentioned in Regulation 2 of this chapter shall isolate himself and every person in charge of such a person shall isolate the person of whom he is in charge in the following manner:

When the disease is—

Anthrax	Plague
Cerebro-spinal Fever	Poliomyelitis
Cholera	Scarlet Fever
Chickenpox	Septic Sore Throat
Diphtheria	Smallpox
Glanders	Typhoid Fever
Leprosy	Yellow Fever
Measles	

the person affected shall be absolutely isolated.

When the disease is—

Chancroid
Dysentery (amebic, bacillary)
Gonococcus infection
German Measles
Hookworm infection
Mumps
Rabies
Syphilis
Trachoma
Tuberculosis
Typhoid and paratyphoid fevers
Whooping Cough

the person affected shall be so restricted in movement that the disease will not spread from him to others.

When the disease is—

Dengue
Malaria
Yellow Fever

the person affected shall be kept in a screened room free from mosquitoes, provided that this form of isolation will be enforced only when practicable in the case of malaria.

No persons other than the physician or person in charge of or in attendance of the patient shall enter any premises, room, or apartment quarantined for a communicable disease in violation of the terms of the quar-

antine. No person shall willfully or negligently expose any other to a communicable disease.

Regulation 8. **Placarding.** When there is a case of anthrax, cerebro-spinal fever, cholera, diphtheria, glanders, leprosy, measles, plague, poliomyelitis, scarlet fever, septic sore throat, smallpox, typhoid or paratyphoid fever, typhus fever, whooping cough, or yellow fever, the health officer shall post a suitable placard or placards in a conspicuous place or places on the premises, apartment or room where the disease exists,[12] provided, if the case is under satisfactory hospital care, the placard may be omitted. No person shall remove such placard except the Health Officer or with his permission.

Note 12. There is no need to put a placard on the outside of a hotel or modern apartment house. In such case it should go only on the room or apartment occupied by the patient.

Regulations 9. **Minimum Periods of Isolation.** The minimum periods of isolation in various diseases shall be as follows:

Anthrax—until all lesions have healed.

Cerebro-spinal Fever — during clinical course and until two successive smears from the nose or naso-pharynx fail to show the presence of the specific organism.

Chickenpox — until primary scabs have disappeared from the skin and mucous membrane.

Diphtheria—until two successive cultures taken from the nose and two taken from the throat at least 24 hours apart, by the Health Officer or his representative, show the absence of the Klebs-Loeffler bacillus.

Cholera, dysentery (bacillary), typhoid and paratyphoid fever—during the clinical course and until the infective organism is shown to be absent from the excreta after not less than two examinations.

Glanders — human cases during clinical course; animals should be destroyed.

Gonococcus Infection — until the discharges show absence of the gonococci.

Measles—until seven days from the appearance of the rash and until all abnormal discharges from ear, nose or mouth have disappeared.

Leprosy—during course of the disease.

Plague—during clinical course.

Poliomyelitis—until three weeks from the day of the receipt of the report of the disease.

Scarlet Fever—at least three weeks after receipt of the report by the Health Officer and until all abnormal discharges from ears, nose, mouth or suppurating glands have ceased.

Septic Sore Throat—during clinical course.

Smallpox—until all scabs have disappeared and the lesions healed.

Syphilis—until open lesions of the skin and mucous membranes have healed.

Tuberculosis—as long as the bacillus is discharged.

Typhus Fever—during clinical course and in a vermin-free room.

Whooping Cough—until six weeks after onset.

Yellow Fever—during the first days of the fever.

Regulation 10. **Rules for Food Handlers.** No persons affected with diphtheria, dysentery (amebic or bacillary) gonococcus infection, scarlet fever, septic sore throat, syphilis in a communicable form, typhoid or paratyphoid fevers, or pulmonary tuberculosis, or who is likely to be carrier of these diseases, shall be employed or be present where milk or any other food is prepared, handled or sold. The Health Officer may examine or cause to be examined for the above named diseases any employee of any establishment where milk or food is prepared, handled or sold.

Regulation 11. **Method of Control of Contracts.** The Health Officer shall have the power to isolate or restrict the movement of any person who is known to have been exposed to any of the communicable diseases named below for a time equal to the maximum incubation period of the disease and in the manner prescribed in Regulation 7 of this chapter.

Incubation Periods: For the purpose of these regulations maximum incubation periods shall be considered to be as follows:

Anthrax—7 days.

Cerebro-spinal Fever—10 days, unless cultures from naso-pharynx fail to show meningococci.*

Chickenpox—3 weeks.

Cholera, Asiatic—5 days.

Diphtheria—7 days, unless a culture from nose and throat fail to show the presence of the Klebs-Loeffler bacillus.*

(*The carrier state may prolong the period in these diseases.)

Dysentery (bacillary)—7 days.
German Measles—10 to 21 days.
Gonococcus Infection—8 days.
Influenza—5 days.
Measles—16 days.
Paratyphoid Fever—10 days.
Plague—7 days.
Poliomyelitis—10 days.
Rocky Mountain Spotted Fever—10 days.
Scarlet Fever—7 days.
Septic Sore Throat—3 days.
Smallpox—14 days.
Syphilis—4 weeks.
Typhoid Fever—21 days.
Typhus Fever—20 days.
Whooping Cough—21 days.

Regulation 12. **Control of Carriers.** The Health Officer or his representative may isolate or restrict the movement of carriers of the infectious agent of cerebro-spinal fever, cholera, diphtheria, dysentery, paratyphoid fever, typhoid fever, or any other communicable disease until their discharges are shown to be free from the specific organisms of the disease.

Regulation 13. **Removal to Hospital of Certain Cases.** When in the opinion of the Health Officer proper isolation or quarantine of a person affected with, or a contact, or carrier of any of the diseases mentioned in Regulaton 2 of this chapter, is not or cannot be properly carried out on the premises occupied by such person, the Health Officer may cause such person to be removed to a hospital or other proper place designated by the Health Officer.

Regulation 14. **Precautions by Attendants.** The physician or any other person permitted to visit a person affected with communicable disease shall practice such measures of personal cleansing, disinfecting and all other precautions necessary, to prevent the spread of the disease to others.

Regulation 15. **Disinfection.** When any person is affected with a communicable disease, adequate disinfection shall begin at its onset and continue until its termination. It shall be the duty of the Health Officer to give specific instructions to the person attending a case or suspected case of communicable disease as to the methods of disinfecting the discharges and articles used by or on the patient, and it shall be the duty of the person in charge to carry out such instructions. No article shall be removed from quarantined premises without a permit from the Health Officer.

When the case has terminated, the owner or occupant shall further disinfect, clean, or renovate the premises as the Health Officer shall require. Any articles which in the opinion of the Health Officer or his representative cannot be properly cleansed or disinfected shall be destroyed. The owner of any premises, apartment, or rooms, which have been occupied by a person affected with a communicable disease, shall not rent the same to others or permit occupation by others until the premises have been cleansed to the satisfaction of the Health Officer.

Regulation 16. **Special Rules for Tuberculosis.** Whenever there is a case of tuberculosis it shall be the duty of the Health Officer or his representative to take such proper precautions as he may deem necessary, and to give proper instructions to the patient and all other persons occupying the same premises to prevent the spread of the disease. Every person affected with tuberculosis shall dispose of his sputum, saliva, or other discharges in a manner not dangerous to public health. Whenever a person so affected is or is likely to be a menace to the health of others, the health department shall have the power to cause the removal of such person to an isolation hospital or other proper place until the danger has been removed.[13] Upon recovery of a person having tuberculosis it shall be the duty of his physician to notify the Health Officer.

Note 13. The Committee believes that such procedure is desirable. Whether such a clause can be incorporated into an ordinance depends upon the powers conferred by the state law.

Regulation 17. **Special Rules for Venereal Diseases.** Reports of syphilis, gonococcus infection or chancroid made in accordance with Regulation 2 of this chapter, shall be considered confidential so far as consistent with public safety. The professional attendant of any case of venereal disease shall give the patient explicit instructions to prevent the spread of the disease to others. When such patient refuses or neglects to follow prescribed treatment, discontinues treatment, or is discharged as cured, the professional attendant shall immediately report these facts to the Health Officer. When any person affected or presumably affected with venereal disease does or is liable to

menace the health of others, the Health Officer or his representative shall have the power to cause the removal of such person to an isolation hospital or other proper place or to take any other measures authorized by law which are necessary in his opinion to prevent the spread of the disease.

Regulation 18. **Vaccination.** Any person who has not been successfully vaccinated against smallpox shall not be permitted to attend any public, private or parochial school.[14] It shall be the duty of the Health Officer to furnish free to all persons vaccine virus for smallpox protection and also the serum or anti-toxin of any other disease.

Note 14. In a few states such a regulation is illegal. The state law and court rulings should be consulted.

Regulation 19. **Rules for Funerals.** When a person has died of cerebro-spinal fever, poliomyelitis, diphtheria, scarlet fever or smallpox, no person except the undertaker and his assistants, the clergyman and others permitted by the Health Officer, shall enter the house until after the funeral and until after the warning placard has been removed. If the funeral is held elsewhere than at the last residence of the deceased, the funeral may be public, provided only those members of the immediate family may attend who in the opinion of the health officer are free from infection and to whom he has given permission so to do.

Regulation 20. **Diseases of Animals.** Any veterinary or other person in charge of an animal affected or presumably affected with any disease communicable to human beings shall immediately notify the Health Officer. Whenever there is reason to believe that any animal has rabies such animal and all others bitten by it shall be securely confined by the owner or person in charge for such a time as is necessary to determine whether the disease exists. Every animal which has rabies shall be killed and the body disposed of to the satisfaction of the Health Officer. The Health Officer shall have the power to require muzzling of all dogs appearing on the public highways, and may call upon the police department to enforce this rule.[15]

Note 15. The control of animals is often a function given by law to a municipal department other than the health department. The local requirements should be ascertained. The Committee favors the above procedure.

Regulation 21. **Special Powers for Emergencies.** In an emergency, including the occurrence of any rare or unusual disease or when any disease becomes unusually prevalent, the Health Officer shall have the power to employ any measures necessary for the protection of the public health and make such expenditures as may be necessary for such purpose.

Regulation 23. **Prohibition of Common Articles Dangerous to Health.** The use of common drinking cups or other drinking or eating utensils or of common towels, or any other article for common use which might spread any communicable disease is forbidden in the (City of ....., Town of .....). The term "common" as used in this regulation shall mean for use of more than one person without proper cleansing and disinfection by methods approved by the Health Officer.

Regulation 23. **Penalty.** Any person who shall violate or fail to comply with any of the provisions of these regulations shall be punished by a fine of not less than $25 nor more than $100, or by imprisonment for not more than three months, or by both, fine and imprisonment.[16]

Note 16. While the terms of punishment depend upon local statutory provisions, or the discretion of the person drawing up an ordinance, the Committee recommends the minimum and maximum limits as here set forth.

Regulation 24. **Repealing Clause.** Any rules or regulations heretofore adopted and inconsistent with these regulations are hereby repealed.

APPENDIX

The following list refers to material of value for reference in drawing up municipal laws and ordinances:—

The State Laws (in most of the states, laws relating to all public health matters are collected and issued in one volume).

The Control of Communicable Diseases. Report of the American Public Health Association Committee on Standard Regulations Appointed in October, 1916. Reprint 436, U. S. Public Health Service, Washington. D. C.

A Guide for Formulating a Milk Ordinance, Bulletin 585, U. S. Department of Agriculture, Washington. D. C.

Report of the Committee on Milk Standards. February 16, 1917, Reprint 386, U. S. Public Health Service, Washington, D. C.

The Model State Law for Registration of Births and Deaths,

and

The Model State Law for Morbidity Reports, U. S. Public Health Service, Washington, D. C.

Report of the Committee on Vital and Penal Statistics, August, 1920,

and

Model Birth Registration Laws (4th Draft) both from National Conference of Commissioners on Uniform State Laws, Eugene A. Gilmore, University of Wisconsin, Madison, Wisconsin, chairman.

Model Housing Law, L. Veiller, Published by Russell Sage Foundation, 130 East 22nd Street, New York City, New York.

Venereal Disease Ordinances. Compilation of Suggested and Adjudicated Ordinances Which Have Proved Successful in Combating Venereal Diseases, V. D. Bulletin 39, U. S. Public Health Service, Washington, D. C.

Organization, Powers and Duties of Health Authorities. An analysis of the Laws and Regulations Relating Thereto in Force in the United States. (Public Health Bulletin No. 54) 1912. U. S. Public Health Service, Washington, D. C. (While this pamphlet is somewhat out of date, and there have been changes in state laws since it was published, it is nevertheless useful as a reference book.)

Vaccination. An analysis of the Laws and Regulations Relating Thereto in Force in the U. S. August, 1919. Public Health Bulletin 52, U. S. Public Health Service, Washington, D. C.

State Commissions for the Study and Revision of Child-Welfare Laws. Bureau Publication 71, U. S. Children's Bureau, Washington, D. C. (This pamphlet gives a good list of references.)

Report of the Committee on Health Provisions for State Laws Relating to Children of the National Child Health Council, Washington, D. C.

Developments in Social Hygiene Legislation from 1917 to September 1, 1920. American Social Hygiene Association, 105 West 40th Street, New York City.

Model Mosquito Ordinance, U. S. Public Health Reports, April 2, 1920.

Model Legislation for Saving Sight (an outline) National Committee for the Prevention of Blindness, 130 East 22nd Street, New York City, New York.

Synopsis of Child Hygiene Laws of the Several States, including School Medical Inspection Laws, November, 1920. Public Health Bulletin 110, U. S. Public Health Service, Washington, D. C.

Carrol Fox, M. D., Chairman.
W. S. Rankin, M. D.
H. B. Hemenway, M. D.
C. E. McCombs, M. D.
Prof. C. E. Turner.
F. E. Fronczak, M. D., LL.B.
W. H. Brown, M. D.
James A. Tobey, Secretary.

REPORT OF COMMITTEE ON PREPARATION, PACKING AND TRANSPORTATION OF FOOD

Presented to Food and Drugs Section, American Public Health Association, at San Francisco, Cal., September 16, 1920.

The past year has not added a great deal to our knowledge of preparation, packing and transportation of food. However, many events the world over have emphasized with greater force perhaps than ever before the importance of our subject to the general food problem.

We all know that the cry of "high cost of living" means to a great extent high cost of food. We can delay buying new clothes; we may forego the automobile and other luxuries; we may dispense with jewelry and other non-essentials, but we cannot be very long without food.

During the war we were urged to save food for the fighting armies and in order that the civil population might be able to produce the required war materials but now the clamor of the hour is cheaper food.

Eastern Europe is starving because the agricultural population is producing merely enough for its own use while the cities are starving, and what food is available for city-dwellers is out of reach of their purse.

This country is fortunate. We have been blessed so generously with the bounties of nature that we never need fear a serious food stringency. However, with the cost of raw materials, live stock, labor and transportation soaring without a corresponding increase in production, the price of prepared food must necessarily rise in proportion.

While we, as sanitarians, are primarily interested in the hygienic side of preparation, packing and transportation of food, we cannot lose sight of the fact that when food becomes so high as to compel a very considerable curtailment of the dietary, either in quality or quantity, public health may become lowered. Similarly, if the methods employed in food preparation, packing and storage are faulty or inefficient and result in excessive spoilage, public health may suffer indirectly by the consequent reduction in the available supply and increase in prices.

A great deal has been said of late about the so-called deficiency diseases which have been ascribed to a lack of certain elements in the dietary. The deficiency here is largely qualitative; but is it not logical to assume that a quantitative deficiency brought about by decreased production and increased prices would, if long continued, result in a state of lowered public health, if not increased morbidity?

We are still very much in the dark about immunity and predisposition to disease. We do not know when and why one ends and the other begins. Is it not possible in the light of what we know about the deficiency or food-quality diseases that predisposition

to disease depends, at least in part, on food quantity?

In addition to the possible indirect influence that preparation of food may have on public health, there is, of course, the more important and immediate effect of eating food that has been prepared in an insanitary or ineffective manner permitting contamination with disease-producing organisms or subsequent development of toxic substances as a result of bacterial growth.

We had an unfortunate example of such an occurrence the past year in the outbreak of botulism in various parts of the country. Time and space will not permit a thorough discussion of all the phases of the lamentable incident nor is it necessary, because we are all familiar with the result of the investigations made by the various federal, state and municipal authorities, as well as by some leading universities.

When we consider the great quantities of canned foods prepared and consumed in this country annually and the rarity of botulism it becomes evident that the danger of botulinus intoxication is small indeed. Again, the fact that the cases of last year were few in number and that no repetition occurred shows that the cause of the outbreak was local and that the repressive measures taken were effective.

Two conclusions seem justified from the histories and investigations of last year's cases:

First: If the food had been more thoroughly sterilized and sealed the probabilities are the organisms would not have developed.

Second: If the general public had been familiar with the possible danger of eating canned food that seems abnormal in the slightest degree in odor, color or general appearance, or is taken from a swelled container, the food in question would in all likelihood not have been eaten. Several of the patients stated that there seemed to have been something wrong with it.

The wide publicity given these cases in the press unquestionably injured the market for canned food in general and probably resulted in financial loss to the producers and manufacturers, and also deprived the public of needed food. How much more prejudice is constantly developed in the public mind against canned and other prepared food by an occasional spoiled package even without producing serious harm to the consumer can only be imagined.

An incident like the botulism of last year is usually followed by a train of legislative remedies not always based on well-established scientific facts which often result in more harm than good because they carry with them unnecessary and expensive restrictions.

Bill No. 14385 was introduced in the House of Representatives on June 3, 1920, and its purpose, as stated, is "To Prevent the Shipment in Interstate and Foreign Commerce of Certain Articles of Food Liable to Cause Botulism and for Other Purposes."

It provides that "No person shall ship or deliver for shipment in commerce any olives, string beans or asparagus, or other foods contained in tin or in glass, unless such olives, string beans or asparagus shall have been treated in such a manner as to destroy decomposition organisms by a method or methods prescribed by the Secretary of Agriculture in rules and regulations promulgated under this act."

The bill authorizes the Secretary of Agriculture to inspect the plants where these foods are prepared as well as the process of operations and the records of the firms, the cost of the inspection to be paid by the owners, monthly in advance. Legal action and punishment for violation of the act are also prescribed. The bill was referred to the Committee on Interstate and Foreign Commerce and ordered printed.

It seems that with the food market in the present uncertain condition and the cost of labor increasing, with the cases of botulism of last year fresh in our minds, and with legislation pending, this is an opportune time to take stock of what we know about food preparation. The time seems ripe to find out what we are doing and what we are not, and to try to improve our methods, if possible.

The prime object of such inquiry should be to make our prepared foods as perfect as modern knowledge can make them and conserve all food consistent with sanitary and scientific methods.

It has been asserted repeatedly in many quarters that huge quantities of food are wasted annually because of improperly cared for raw materials, inefficient process

of manufacture, insanitary handling of finished products, lack of understanding of the cause of spoilage and carelessness during transporting and storing.

A good deal of confusion exists in the application of food legislation. There is no universally accepted code, with the result that conflicting laws are created in different localities upon which decisions on sanitation, labeling, branding and adulteration are based.

A study of existing conditions may make it possible to formulate standards in the preparation, sanitation, care in keeping, etc., of each class of food that will serve as a guide to the producer, manufacturer, health officer, food official and others.

Of course, this is quite an ambitious undertaking but a great deal of valuable material has already been made available through the work of the Bureau of Animal Industry, the Bureau of Chemistry, the National Canners Association and other agencies, which can be utilized. Needless to say the authoritative approval by the Association of such methods as can be adopted as standard would be productive of a great deal of good.

Next in importance to production and preparation is transportation of food. If food could be produced with equal ease in every part of the country there would be no transportation problem; but because most of our foods, especially the perishable varieties, must be prepared in season at the place of surplus production and shipped great distances to the markets of greatest consumption, the question of transportation with reference to cost, sanitation and efficiency is of tremedous import.

If for some reason the transportation system breaks down, the result is not only a lack of supply which is followed by high prices of food in the large consumption centers but also a loss to the producer of the reward he expected to realize from his labors. His incentive to further production is thereby removed. It is self-evident that any interruption of the link between the producing and consuming centers must result in an increase in the prices of such foodstuffs as reach those centers.

We have heard a great deal of late about the deplorable condition of our transportation system and facilities. We know how difficult it has been since the war to move anything, even mail. The press and the magazines of the country warn us constantly that the great grain and garden crops and fruits cannot be moved because of shortage of cars. We are even told that great quantities of perishable foods are spoiling because they cannot be shipped.

It seems certain that on account of the wearing out of the equipment during the war and failure to keep repairs up to the extent that had been the rule prior to the war there is a real shortage of equipment. The Interstate Commerce Commission recently estimated that the railroads need an additional 100,000 cars (20,000 of which should be refrigerator cars) and 2,000 engines. The unsettled state of railroad labor has also contributed in no small degree to the breakdown of transportation efficiency.

It has been estimated that in pre-war times the movement of refrigerator cars was about 80 miles per day. This average included all delays for loading and unloading, repairs, etc. For the first six months of 1920, the average was only 58 miles per day. This would have the same result as if under a movement of 80 miles per day about one-fourth of the cars had been destroyed.

There has also been a slowing up of box car movement in which such articles as grain and other food products not requiring refrigeration are transported. It is obvious that if a certain transportation service formerly required the use of a car for five days and the same service now requires ten days, the result is the same as if the car supply had been cut in two. On the other hand, if a service now requiring ten days could be reduced to five days the result would be the same as if the car supply had been doubled.

There are obviously only two possible remedies: First: An increase in transportation facilities. Second: A more efficient operation of the existing facilities. These remedies should go hand in hand and one should supplement the other.

In the Transportation Act under which the railroads were returned to private ownership, Congress created a fund out of which the Interstate Commerce Commission was authorized to loan money to carriers for a period of years to enable them to meet maturing obligations and to add to

their facilities to the extent required by the general public interest. The fund was not nearly large enough to supply the Commission's estimated minimum requirement of 100,000 cars and 2,000 engines. A sum of $75,000,000 has, however, been set aside by the Commission to be loaned the railroads for the purchase of equipment. This is a step in the direction of the first remedy mentioned.

The other remedy, namely, more efficient utilization of present facilities can be brought about to some extent by an improvement in the morale and increase in the amount of work of the railroad employees which, it is hoped, will result from the recent wage adjustments.

It can also be aided somewhat by avoiding delays to cars through loading and unloading, and for that purpose heavy demurrage charges have been established by the railroads with the approval of the Commission.

And lastly, all the available shipping space, more particularly refrigerator cars, must be utilized to the fullest capacity.

In face of this, an attempt has recently been made to destroy at least in part the present facilities best suited for the preservation of certain of the perishable food products. The Interstate Commerce Com mission has been asked that the owners of a certain system of refrigerator cars be not allowed to ship butter, eggs, cheese or dressed poultry in their meat cars. As these cars are the only refrigerator cars which provide regular service to thousands of small towns, it would mean if the request is granted that these towns would either be deprived of the benefit of getting their foods from the markets of surplus production or it would have to be shipped to them in box cars and arrive, in many instances, in damaged or spoiled condition.

All the efforts of the Federal Department of Agriculture in recent years have been toward having the perishable products concentrated in one form or another as near the point of production as possible and then carried under refrigeration to distant markets. For example, it has urged for years that eggs and dressed poultry be concentrated in the territory of surplus production. The Department has gone so far as to assert that to carry dressed poultry in ice-packed packages where the poultry came in direct contact with the ice constituted a fraud upon the consumer because of the immense amount of water the fowls would contain after a journey in direct contact with melting ice.

It seems clear that from the standpoint of public health and well-being every effort should be made not only to continue the facilities we have, but to improve, perfect and enlarge the facilities necessary for the transportation of perishable food products over long distances and that any step which tends to destroy the availability of any of those facilities is an action directed against the public welfare.

W. H. Lipman, M. D., Chairman.
Anna Augusta Chapin.
A. W. Lombard.
Henry W. Lehmkuhl.
J. D. Nichols.

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EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Assistant Bacteriologist for Public Health work in State Laboratory. Salary $1200 to begin. Apply State Medical Advisor, Boise, Idaho, giving references, qualifications and when available.

$2500 a year for recent M.D. who can teach Hygiene and carry on private research in bacteriology or serology. Address 432, G.M.D., care of this Journal, Boston address.

Wanted: Chemist with some training in bacteriology, including milk and water analysis, to fill position as health officer in New England industrial city of 16,000. Apply Board of Health, Berlin, N. H.

Wanted: Sanitary Engineer who has had some experience in malaria control work, preferably someone who has lived in the South, and is familiar with conditions. Salary $200 a month. Address 431, F.M.L., care of this Journal, Boston address.

Wanted: Competent man for Superintendent of Tuberculosis Sanatorium in Northern Minnesota 18 miles from Bemidji. Competent business man as well as a competent physician. State experience, salary required and give references. Address P. A. Walling, Commissioner, Park Rapids, Minnesota.

Health Department, City of 50,000, will need April 1st a Supervising Nurse for twelve nurses. Must be well educated, have executive ability and experience. Salary $2,000, an automobile and its upkeep. Address Health Officer, Charlotte, N. C.

POSITIONS WANTED

Position wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Position as a laboratory worker or teacher of Bacteriology and Laboratory Methods in Medical School or School of Public Health by woman, B.S., Ph.D., from Standard University. Nine years' college teaching experience. Board of Health and Army laboratory experience. Address 142, H. E. R., care of this JOURNAL, Boston address.

Wanted: Position in any line of Public Health work, by a man of six years' experience in Federal, State and Municipal health work. Public Health degree and possessed of considerable executive ability. Address David E. Rouse, State Board of Health, Montgomery, Alabama.

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Policy of the United States Steel Corporation with Respect to Treatment of Labor: —Coming to this question of welfare work, I think one of the most important questions to consider is the question of the proper treatment of employees. It is not important to consider what the treatment of the employer by the employee is or may be. The man who has the intelligence and the success and the capital to employ labor has placed upon himself voluntarily a responsibility with reference to his men which he cannot escape and ought not to endeavor to escape. And I want to say to you gentlemen, in my opinion one of the greatest questions for consideration by the capitalists of America today is the question of the treatment of their employees—of the laboring men, so as to make it certain there will never in this country be any excuse for the advancement of the ideas of the anarchist or the socialist. If those who represent capital, those who represent power, those who have the opportunity to make better or worse the condition of the laboring men, will make it absolutely certain that the right thing is done under all circumstances, and that no excuse is offered for attack on the part of those who are employed, they will be doing something for their country that is worth while.—Elbert H. Gary, *Bull. No. 8, U. S. Steel Corp.*, Bur. of Safety, Sanitation & Welfare, Dec., 1920, p. 3.

CONVENTIONS, CONFERENCES, MEETINGS

March, first week, Concord, N. H., New Hampshire Health Officers' School of Instruction and Health Conference.

March 7-10, Chicago, Ill., Midwinter Conference of the American Medical Association.

March 7-9, Chicago, Ill., Association of American Medical Colleges.

March 7-9, Chicago, Ill., Annual Congress on Medical Education and Licensure.

March 7-9, Chicago, Ill., Federation of State Medical Boards of the United States.

March 7-9, Chicago, Ill., American Conference on Hospital Service.

March 10, 1921, Halifax, N. S., Social Service Council of Nova Scotia.

April 5, Hackensack, N. J., New Jersey State Nurses' Association.

April 5, Nashville, Tenn., State Medical Association of Tennessee.

April 12, Clarksburg, W. Va., West Virginia Health Officers' Conference.

April 18-23, Cincinnati, Ohio, Public Health Federation.

April 19-20, Columbia, S. C., South Carolina Medical Association.

April 19-21, Montgomery, Ala., Medical Association of the State of Alabama.

April 19-21, New Orleans, La., Louisiana State Medical Association.

April 25, Pinehurst, N. C., North Carolina Health Officers' Association.

April 28, Boston, Mass., Massachusetts Association of Boards of Health.

April 28-29, Detroit, Mich., Michigan College of Surgeons.

May 2-5, Brooklyn, N. Y., New York State Medical Society (with Exhibition).

May 3-5, Columbus, O., Ohio State Medical Association.

May 4, Rome, Ga., Georgia Medical Association.

May 4, Brooklyn, N. Y., New York State Association of Public Health Laboratories.

May 4-6, Wichita, Kans., Kansas Medical Society.

May 5, Macon, Ga., Georgia Hospital Association.

May 9-10, Indianapolis, Ind., Indiana State Health Association.

May 9-11, Buffalo, N. Y., American Association of Engineers.

May 10-12, San Diego, Cal., California State Medical Society.

May 9-12, Lincoln, Neb., Nebraska State Medical Association.

May 10-11, Atlantic City, N. J., American Association of Physicians.

May 10-11, Laurel, Miss., Mississippi State Medical Association.

May 11-13, Des Moines, Iowa Medical Association.

May 13-14, Boston Public Library, Boston, Mass., Massachusetts Tuberculosis League.

May 16-17, Toronto, Ont., Can., Ontario Health Officers' Association.

May 16-20, Winton Hotel, Cleveland, Ohio, Ohio Hospital Association.

May 17-19, Springfield, Ill., Illinois Medical Society.

May 17-19, St. Joseph, Mo., Missouri State Medical Association.

May 17-19, McAlester, Okla., Oklahoma State Medical Association.

May 18-19, Hartford, Conn., Connecticut State Medical Society.

May 19-21, Hot Springs, Ark., Arkansas Medical Society.

May 23-26, Congress Hotel, Chicago, Ill., American Society Mechanical Engineers.

May 24-26, Aberdeen, S. D., South Dakota State Medical Association.

May 25-26, Concord, N. H., New Hampshire Medical Society.

May 26-27, Hotel Waldorf, Fargo, N. D., North Dakota State Medical Association.

May, 1921, Copenhagen, Denmark, Second Regional Conference.

May 31-June 1, Boston, Mass., Massachusetts Medical Society.

May, fourth week, Pence Springs, W. Va., West Virginia State Medical Society.

June 3-5, Boston, Mass., Conference of State and Provincial Health Authorities of North America.

June 6-10, Boston, Mass., American Medical Association.

November 14-18, New York City, American Public Health Association

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horwood, James A. Tobey and Homer N. Calver.

Complement Fixation for Tuberculosis in Children.—In a large series of children (1556) studied, several features of interest regarding the complement fixation test have been observed. In manifest tuberculosis there has been a striking relation between the age of the child and a positive reaction. More than 80% of those over 6 years of age gave a positive reaction, a ratio similar to that found in adults, while none in the first year reacted positively to the test. From the second to the sixth year gradually increasing numbers of children develop fixing antibodies. The absence of fixing bodies in tuberculosis of infants and in a considerable ratio of younger children may have some relation to the very rapid spread of the disease at this time of life which is commonly observed, since the inability to form fixing antibodies may be associated with a lack of power to form other protective antibodies.

The absence of complement fixing antibodies in young children, however, has little importance in the question of diagnosis since it is at this age that the tuberculin skin tests are of greatest value in calling attention to an active infection. In older children, on the other hand, the skin tests do not always indicate the presence of an active tuberculous process, and it is here that the complement fixation test is of particular value, because of the high ratio of tuberculous children who give a positive reaction.

The complement fixation test has proved of considerable value not only in calling attention to cases of tuberculosis without well defined clinical signs, but in making a decision regarding the presence of active tuberculosis foci in children exposed to the disease and also in following the course of a healing lesion. This test must not be considered a relatively easy and infallible method of diagnosing an active tuberculous process. It is of most value when used as an aid to a careful and complete physical examination. The results show that a positive fixation reaction is associated in a large majority of cases with a tuberculous lesion that is pathologically if not clinically active, and consequently any patient giving a positive reaction should not be considered free from active tuberculosis without a thorough study.—J. V. Cooke, *Amer. Jour. Dis. of Children*, January, 1921, 78, (*D. G.*)

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Tuberculosis Menace Found in Condemned Cattle Meat.—Following the tuberculin testing of 37 cattle on an Indiana farm, 14 animals which reacted to the test, when slaughtered in an establishment under Federal supervision, showed lesions of the disease not only on the organs, but even in some of the meat. In reporting the incident to the United States Department of Agriculture, Inspector R. R. Newman explained that the demonstration was of unusual interest because all the cattle were pure bred. One of the cows, which had supplied milk for local use, showed extensive lesions of tuberculosis in the mammary glands, a condition associated with probable infection of the milk. Several stock raisers who saw the tuberculosis carcass, have signified their desire to have their herds qualify for a place on the accredited-herd list. Herds on this list are officially recognized as free from tuberculosis.—(*J. A. T.*)

✣

Tuberculosis in Infants and Young Children.—A study of the records of the Babies' Hospital, New York City, shows tuberculosis to be an important and frequent cause of death among infants and young children. It is encouraging to note the decline in the number of deaths from this cause as compared with the previous decade. This study also shows a greater incidence of tuberculosis acquired by inspiring tubercle bacilli compared with that acquired by swallowing the bacilli with milk or food. Tuberculosis in young subjects becomes rapidly generalized, the rapidity and degree of generalization, being as a rule in inverse ratio to the age. Of 184 necropsies made not a single instance of healed tuberculosis was found. Of the forms of tuberculosis, the meningitic form was present in 53% of the children, diagnosed as tuberculous.—M. Wollstein and R. C. Spence, *Amer. Jour. of Dis. Children*, January, 1921, (*D. G.*)

Environmental Factors in Tuberculosis.—If we would know the true environmental factors which operate in the breakdown of tuberculosis we must not accept as our definition of environment "those physical objects that externally encompass human beings." There are many other factors which are of very great importance. There may be an environment of disease, of measles, of septic infections, of the common cold, of influenza, etc. Again there is an environment which comprises numberless opportunities for physical injury to the person, an environment of perfectly accidental happenings, which neither foresight nor law nor instruction can ever wholly do away with. Then there is the environment of personal association, of antagonistic personal association in particular. The older philosophers and brooders over the well being of man were enormously impressed by this factor in human nosology. There is a social and familial environment of amiability and good fellowship and contentment and happiness; it may exist in surroundings which physically may be far from our accepted hygienic ideal, and its effect on the general well being of those happily situated in it is all good. The long and short of it is that environment comprises all and everything that enters into the experience of a human being; and that, as regards tuberculosis, any experience that may modify in any way the origin and development of infection is an environmental influence.—A. K. Krause, *Amer. Rev. Tuberculosis*, Nov., 1920, 713. (*D. G.*)

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Contact Infection in Tuberculosis.—The author confirms the work of previous investigators concerning the relation of contact with the tubercle bacillus. Experiments were carried out to determine the infectiousness of droplets from coughing patients, of gauze used by coughing patients to cover the mouth, pillow cases, door knobs, eating utensils and of frequently-handled magazine covers. The results indicate that of the guinea pigs that were exposed to the washings from these objects a fair number presented evidences of tuberculous infection. In concluding the author says that aside from the mere presence of the organism in the body other factors are necessary for the development of clinical tuberculosis. What the factors are has not as yet been clearly shown. In all probability there must be a lowering of the individual resistive power; whether this is congenital or acquired, whether purely local or constitutional resulting from pathological states or physical abnormalities is still a question.—J. B. Rogers, *Jour. A. M. A.*, Dec. 18, 1920, 1690. (*D. G.*)

✣

Red Cross Aid for Salem, Ohio.—The American Red Cross appropriated $70,000 to assist in coping with the serious epidemic of typhoid fever in Salem, Ohio, recently. This organization established four emergency hospitals in which about 200 persons were cared for. Fifty-eight nurses were assigned to Salem during the epidemic. The citizens of Salem also raised $52,000 in spite of disrupted and industrial conditions.—(*J. A. T.*)

✣

Hospitals for ex-Service Men.—The U. S. Public Health Service advocates that an adequate hospital construction program should be undertaken by the national government to care for ex-service men and women. Tuberculosis and mental disorders create the most urgent demands and the ones which will require hospital treatment over long periods.

Army patients suffering from tuberculosis are warned against migration to the semi-arid west, all service and contract hospitals in that section being now completely filled.

✣

Milk-Borne Diphtheria.—A small epidemic of diphtheria is described, which, when traced to its source showed the vehicle of infection to be unpasteurized milk. Cultures were taken from the family of the dairyman and from the other milk handlers. A daughter of the owner had a sore index finger, which on examination showed the nail to be gone and the sore to be covered with a soft brownish scab, removal of which revealed a soft white exudate. Cultures from this sore showed *B. diphtheriæ*. It was later learned that this girl had milked except when her finger was too sore to do so and that she had been at work at this dairy either milking, delivering milk or helping in other ways.—J. E. Henry, *Jour. A. M. A.*, Dec. 18, 1920, 1714. (*D. G.*)

Nutrition Class Proves Value.—Interesting results have been obtained in a nutrition class conducted by the American Red Cross Chapter in Elden, Mo. Of the 502 children weighed and measured, 198, or 39% were found to be under weight. The second weighing, which took place two weeks later, showed that all but five had gained in weight. Milk is being furnished by the chapter to undernourished children in the schools and arrangements are being made with lunch room owners to provide at least one hot dish daily for children who cannot have their noonday meal at home.—(*J. A. T.*)

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Sheepskin Coats for T. B. Patients.—The Public Health Service has purchased 2,500 sheepskin lined coats for use in its tuberculosis hospitals. Clothed in these windproof coats, which extend to the ankles, ex-service men are expected to enjoy the sunshiny winter days while taking the cure in their reclining chairs during the rest hours at Uncle Sam's various sanatoriums. A sufficient number of these coats has been sent to all the sanatoriums, both those in the arid southwest and those in the Asheville sector, as well as others throughout the country. Even those in southern California have not been neglected, as the days are sometimes chilly even in that favored clime.

✚

Immigration and Disease.—In the Annual Report of the U. S. P. Health Service, Surgeon General Cumming outlines the situation with reference to the importation of disease from foreign countries.

"With the cessation of hostilities in Europe and the resumption of maritime commerce the danger of the introduction of epidemic diseases into the United States increased. During the war sanitation and public hygiene were more or less neglected. In the countries of central Europe conditions became very favorable for the outbreak of epidemic diseases and in many areas infection of typhus, plague and cholera smouldered along ready to burst forth under conditions that subsequently were sure to arise. The saving feature of the whole situation was the restriction of travel from one country to another. On the resumption of commercial intercourse the expected happened. Even before the armistice this condition of affairs was foreseen and medical officers of the Public Health Service were sent to Europe for the purpose of investigation and to make preparation for the application of preventive measures at European ports of departure whenever there should be resumed trans-Atlantic travel. At present officers of the Public Health Service are stationed at practically all of the important ports of continental Europe for the purpose of inspecting vessels and personnel prior to their departure for ports of the United States. All verminous persons coming from typhus-infected areas are required to undergo appropriate treatment and detention when necessary, before embarkation. Notwithstanding this precaution, however, typhus has broken out on several of the vessels bound for ports of the United States, but with the detection of the disease on the arrival of the vessel and the appropriate treatment of personnel at quarantine stations the efforts to prevent the introduction of typhus from Europe has proven entirely successful. Measures in force along the Texas-Mexican border to prevent the introduction of typhus from Mexico into the United States have been equally effective. While typhus would probably never cause such a serious epidemic in the United States as in other countries, it is by no means improbable that the conditions in the tenement sections of the larger cities would not be productive of a serious epidemic of typhus if the infection were introduced into such localities."

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More Girls Than Boys Are Under Weight.—Records of weight of school children in relation to age and height have been made in six high schools and eighteen elementary schools of Baltimore county, Maryland.

Of 851 girls in the high schools, 171, or about 20% were under weight, and of 1,161 high school boys, 197, or about 16%, were under weight. Almost the same condition was found in the elementary schools. Of 1,086 girls, 218, or about 20%, were under weight, and of 1,274 boys, 182, or about 14%, were under weight. In all, 1,937 girls and 2,435 boys were examined.—*School Life*, U. S. Bureau of Education, Dec. 1, 1920. (*J. A. T.*)

Health Conditions in Poland.—According to government reports the number of children infected with tuberculosis in Poland is estimated at 40%, typhus is spreading at an alarming rate among the undernourished population, and there is an estimated food supply sufficient to last only four months. After six consecutive years of privation and suffering without adequate food or clothing children of the new central European republic fall easy prey to plagues. Tuberculosis among the milch cows of the nation is a strong contributing factor to the alarming spread of the disease and medical officers of the American Red Cross who have made investigations among the rural districts report that bovine tuberculosis is general. An unusually high rate of child mortality is the result.

The coming of winter has brought a recurrence of typhus, the disease that caused hundreds of thousands of deaths in central Europe last winter. In its effort to better sanitary conditions the American Red Cross has turned over to the danger zones east and south of Warsaw tons of soap, which will be used in hospitals, public baths and for distribution among the villages. Before the war Poland made a large amount of soap, but the industry has been crippled by lack of materials and labor.

It is estimated that more than 600,000 refugees came into Poland during the months of July and August. The overcrowded conditions, dirt, vermin and infectious diseases apparent among these thousands point toward a recurrence of epidemic diseases of greater magnitude than ever before, says an official report. An acute shortage of drugs also hinders the fight against the disease.

"There is no strychnine, no digitalis or strophantus," said Dr. Habicht, former surgeon in the Austrian navy, now serving with the Polish general staff as plenipotentiary to the American Red Cross. "Oil of camphor is the only cardiac stimulant that is available in Poland in any quantity sufficient to meet the demands of the health situation. This shortage of pharmaceutical drugs, coupled with the almost total absence of disinfectants, makes Poland's fight against the typhus plague an unequal one and will undoubtedly mean the death of thousands."

Such alarming health conditions have led the European Relief Council, of which the American Red Cross is a member, which is raising $33,000,000 for relief among the children of Europe, to appropriate $10,000,000 toward a medical program.—(*J. A. T.*)

✚

Feeding Garbage to Hogs.—Under this title the U. S. Department of Agriculture has issued an attractively gotten up pamphlet (Farmers' Bulletin 1,133). A number of acts are brought out in this pamphlet, among them that the waste food products of more than 8,000,000 people are being fed to swine and fully 40,000,000 pounds of garbage fed pork are sold annually. It is stated that a ton of municipal garbage produces 40 pounds of marketable live weight of hog on the average. Information to the public of the feeding in order to keep the garbage free from cans, glass, etc., is urged and the municipality should make the collections and dispose to contractors on long time contracts unless the city operates its own hog-feeding farm. Raw garbage is better than cooked garbage, though that which is frozen should be thawed. Immunization against cholera should be given to hogs to be fed garbage. Hogs fed on garbage show no greater susceptibility to tuberculosis, pneumonia or kindred diseases than grain fed animals.—(*J. A. T.*)

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Influence of Antityphoid Inoculation on Typhoid Rates.—The experience of the industrial department of the Metropolitan Life Insurance company shows that the typhoid fever death rate in 1919 for white men between 20 and 35 years was 64% below that of the annual average for the same group in the six years 1911-1916, while the rate for white women showed a decline of only 47%. The death rate for white men in this age group for the six-year period 1911-1916 was 22.3 and for white women 14.9 per 100,000. The rate in 1919 for white men was 8.0 and for women 7.9. Since a large proportion of the men had the benefit of army and navy antityphoid inoculations and the women did not the greater decline in the typhoid rate among these men must be ascribed to the army and navy antityphoid inoculations.—*Jour. A. M. A.*, Nov. 27, 1920, 1504. (*D. G.*)

Effects of Syphilis on Families of Syphilitics.—The authors report their findings in the examination of the families of 555 late syphilitics made at the Psychopathic Hospital, Boston. They find that the family of the late syphilitic abounds with evidence of syphilitic damage. (1) At least one-fifth of the families of the syphilitic have one or more syphilitic members in addition to the patient. (2) Between one-third and one-fourth of the families of the syphilitics have never given birth to a living child. This is much larger than the percentage obtained from the study of a large group of New England families taken at random which shows that only one-tenth were childless. (3) More than one-third of the families of syphilitics have accidents to pregnancies; namely, abortions, miscarriages or stillbirths. (4) The birth-rate in syphilitic families is 2.05 per family; whereas the birth-rate in New England families mentioned above is 3.8 per family or almost twice as great. (6) Two-thirds of the families show defects as to children (sterility accidents to pregnancies, and syphilitic children). Between one-third and one-fourth of the spouses examined show syphilitic involvement. (7) Between one in twelve and one in six of the children examined show syphilitic involvement. (8) One-fifth of the children born alive in the syphilitic families were dead at the time the families were examined. This does not differ materially from the general average in the community. (9) One-fifth of the pregnancies are abortions, miscarriages or stillbirths, compared with less than one-tenth of the pregnancies in non-syphilitic families. (10) The average pregnancies per family is 2.58, compared with 3.88, 4.43, and 5.51 in non-syphilitic families. The family of every syphilitic patient should be examined irrespective of the stage of the disease or the symptomatology presented by the patient when first seen. If this is done, cases of conjugal and congenital syphilis will be discovered which would otherwise be neglected. They will often be found at a period when symptoms are not active, and thus treatment may be instituted before irreparable destructive lesions have occurred. —H. C. and M. H. Solomon, *Social Hygiene*, October, 1920, 469. (*D. G.*)

NOTES FROM FOREIGN LANDS

Fighting Disease in Montenegro.—As a first step in a determined campaign against venereal diseases in Montenegro, a Wassermann laboratory and public dispensary has been organized at Podgoritza by the government of Montenegro, to be affiliated with the American Red Cross hospital which has been taken over by the local authorities. An appropriation of 150,000 dinars has been made for the new work by the Jugo-Slav Government, as the result of earnest appeals from local physicians.—(*J. A. T.*)

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Official Aid for Volunteer Societies.—The British Ministry of Health in a circular addressed to local authorities urges them to render such financial assistance to the voluntary agencies engaged in maternity and child welfare work in their district as circumstances render desirable. It appears that many authorities are already doing this, contributing either a certain percentage of the expenditure of the voluntary agency or a fixed sum. Assistance has become necessary because of the diminution of voluntary subscription and the general rise in prices. The Ministry of Health feels that if the work these societies are carrying on were allowed to lapse it would become entirely an official burden. By giving financial assistance to these societies local authorities will help to preserve for the service of mothers and children not only the voluntary subscriptions which these societies can command, but also the valuable services of their unpaid workers.—*Lancet* (London), Dec. 4, 1920. (*H. N. C.*)

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Netherlands Child Welfare Council.—A Central Council of 10 to 20 members, with offices at The Hague, was appointed by royal decree in March, 1920. Its duties are to advise and assist the Government in matters relating to educational activities outside of school, affecting children between the ages of 13 and 18. The Council is to inform the Government on matters connected with the subsidizing of the various agencies and the promotion of coöperation between them. It is also required to make an annual report to the Minister of Public Instruction.—*Weekly Summary, Children's Bureau*, Washington, D. C. (*H. N. C.*)

Medical Relief for the Children of Europe.—Nearly 20 child relief units of the American Red Cross have already been established in Europe, most of which are in Poland, where the greatest distress exists among the child population. Within a few months it is expected that 50 such units will be in full operation and that ultimately there will be at least 100. Plans for the work embrace the Baltic States and to a certain extent Austria and Hungary, as well as Poland and adjacent countries and Jugo-Slavia. The general plan of organizing these units provides for a doctor, several nurses and a trained social worker for each unit. Wherever possible local personnel will be utilized. In all cases the Red Cross effort is directed toward building up in the community in collaboration with the public authorities and local organizations, permanent, constructive measures for saving child life which will remain effective when the Red Cross finally withdraws.

An appropriation of $5,000,000 has been voted to carry on child welfare work in Europe. This work is supplementary to clothing and feeding plans of the European Relief Council and is concerned entirely with medical care.—*(J. A. T.)*

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Classes for Myopic Children.—After four years' experience and observation in the Govan Parish School, Scotland, much valuable information has been acquired regarding the teaching of children suffering from high myopia and partial blindness. In this school special attention has been given to the development of proper desk and seat for the children and the arrangement of blackboards and windows. The desks consist of a flat surface 30x22 inches fixed on a semicircular guide of metal so that it can be set at any desired angle or distance from the seat. The edges of the desk are fitted with grooved straps so that there may be inserted paper for use in printing large letters with rubber type, or blackboards so that the child may write large letters at arm's length. The blackboard space on the wall has been made extraordinarily large by means of an arrangement of double boards which may be easily moved with ropes and pulleys. An excellent summary of the scholastic treatment of myopia is given.—G. A. Brown, *Med. Officer*, Jan. 1, 1921. *(H. N. C.)*

Report of the Scottish Consultative Council.—The Scottish Board of Health, like the British Ministry of Health, has a Consultative Council on Medical and Allied Subjects. Its interim report on a Scheme of Medical Service for Scotland compares favorably with similar reports used in England and Wales. There is, however, no mention made in this report of primary and secondary health centers which were a central feature of the English report. Prominent features of the report are provisions for an increased number of convalescent homes, for "hospices" and for laboratory services. The proposal for "hospices" is a novel one. These are recommended to meet the urgent need for the better accommodation for care of ordinary illness than can be found in many of the homes of the industrial workers. They consist of few beds in an ordinary house within easy reach. The report points out that the whole scheme of medical service recommended by them would not only be economical in practice but would be directly profitable to the state. —*Medical Officer*, Jan. 1, 1921. *(H. N. C.)*

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Infant Mortality and Tuberculosis in Vienna.—An increase of 40% in the deaths of children under one year of age has been found by American Red Cross officers making a statistical study of child health conditions in the Austrian capital. Between January 1 and June 30, 1920, there were 15,681 births and 20,129 deaths, an excess of 6,448 deaths. This disparity is further increased by the death of 2,474 children in their first year, making the actual decrease in population nearly 9,000 for the first six months. Nearly 25% of the deaths among the people of Vienna are attributed to tuberculosis. There are today 115,000 tuberculous children in Vienna, 16,000 of whom are in urgent need of surgical treatment. Of 54,000 children recently examined at the state clinic, but one in 12 was in normal health. Symptoms of rickets have been found in 90% of the school children under 12 years of age, and there are 30,000 well-developed cases of this disease now known to the authorities.—*(J. A. T.)*

STATE HEALTH NOTES—LEGISLATION

National. Congressional Procedure. — Since the last issue of the JOURNAL, the Sheppard-Towner Bill (S 3259) for the public protection of maternity and infancy was reported favorably in the House by the Committee on Interstate and Foreign Commerce on January 28. It is now (Feb. 4) on the calendar, but it is a question whether action will be taken on it or not. Congress is much crowded and there are many appropriation bills under consideration. The Smith-Towner Bill to establish a Department of Education, which was favorably reported on January 17, is in the same predicament. There is only a month left in which the 66th Congress functions. The bill (H R 15894) authorizing an additional appropriation for medical, surgical and hospital services for persons who served in the World War seems likely to pass.

The Sundry Civil Appropriation Bill for 1922, which was adopted in the House on January 7, contained an item of $200,000 for the Division of Venereal Diseases of the U. S. Public Health Service; $336,715 was asked for. The appropriation of $2,246,924 requested for the Interdepartmental Social Hygiene Board was entirely eliminated. Unless the Senate comes to the rescue, this board will cease to function. The House refused to give the Public Health Service $200,000 for the control of influenza and other epidemic diseases and also refused an item of $50,000 for health education.

Many people think the *Congressional Record* is dry reading. The following is taken verbatim from the *Record* of January 3 and may prove rather interesting to public health workers. It shows to an extent the way in which health topics are discussed in Congress.

The Clerk read as follows:

Prevention of epidemics: To enable the President in case only of threatened or actual epidemic of cholera, typhus fever, yellow fever, smallpox, bubonic plague, Chinese plague or black death, trachoma, influenza, or infantile paralysis, to aid state and local boards, or otherwise, in his discretion, in preventing and suppressing the spread of the same, and in such emergency in the execution of any quarantine laws which may be then in force, $500,000.

MR. MANN of Illinois. Mr. Chairman, I move to strike out the last word. I notice that it is proposed to increase the epidemic appropriation from $355,000 which was the present law, to $500,000 for the next year. There is one reason which I can readily understand: There may be an epidemic following the recent election. (Laughter.) But what is this money for, may I ask, and how much is being used now for imaginary or real epidemics?

MR. GOOD. The expenditure this year has largely been in Southern ports. The bubonic plague has broken out in New Orleans and two or three other Gulf or Southern cities and it was necessary to commerce to carry on a very extensive work there to exterminate rats. That has cost a great deal of money, and my recollection is that they have expended for this year the most of their appropriation and will come in for a deficiency because of that fact.

MR. MANN of Illinois. Well, it may be if there has been an epidemic or threatened epidemic in these ports, I was not familiar with that fact, but I can see that is a very good work, but while they are spending so much money in killing off rats the number of rats seems to be increasing everywhere.

A year or so ago, maybe longer, we included influenza in this item. Of course, influenza is always present. Any bureau of the Government can always find ways of spending money for influenza. Is there any necessity for carrying that provision in this item so as to encourage them to spend money?

MR. GOOD. I will say to the gentlemen that they had a separate item for influenza, and we struck that out and put the word in here, so that if the influenza epidemic should break out again it could not be said that Congress had not made some provision for the investigation.

MR MANN of Illinois. Of course, it is inevitable, I suppose, where we ever make an appropriation for a possibility, so as to guard against what might happen in the future, they immediately seize that money to establish a current work and continue it forever.

MR. GOOD. That is true.

MR. MANN of Illinois. And if the emergency arises they never have that money for the emergency. I get tired of this abuse of power on the part of many of the Government officials, but which I think is perfectly natural. They are pressed to spend the money. I am not criticizing them.

MR. GOOD. They asked for $200,000 as a separate appropriation for influenza. We struck out and put in the word here so as to give them authority.

MR. MANN of Illinois. The word was in here before.

MR. GOOD. Yes; in the law but not in the estimate. They asked to have it stricken out of this paragraph, but to insert a new paragraph with an appropriation of $200,000 for influenza alone. We refused that.

The Chairman. The time of the gentlemen has expired. The Clerk will read as follows:

Rural Sanitation. For special studies of and demonstration work in rural sanitation, including personal services and including not to exceed $5,000 for the purchase, maintenance, repair and operation of motor propelled passenger-carrying vehicles, $50,000; Provided, That no part of this appropriation shall be available for demonstration work in rural sanitation in any community unless the State, county or municipality in which the community is located agrees to pay one-half the expense of such demonstration work.

MR. MANN of Illinois. Mr. Chairman, I move to strike out the last word, I shall not propose an amendment to increase the amount of appropriation for rural sanitation, and I suppose under existing conditions I probably would not vote for one. And yet it almost made me heartsick at times to think of the enormous sums of money absolutely expended, as it seems to me with an Army too big and a Navy too great, and then refusing to spend a little money where it would make people healthier, happier and wiser. The Government appropriates millions of dollars to bring men into the Army, millions of dollars for any kind of a naval craft, and then much more to support the personnel of that craft than it would cost to spread light throughout many sections of the country about sanitation and health. I do not think it is the duty of the general Government to regulate the affairs of all the individuals in the country, but when I know the good that has been done not merely by the Government but by organizations outside and the good that might be done in a direction like this, it makes me wonder if we will ever wake up and have sense enough to save money where it is not needed to be expended and expended where it will do real good.

Mr. HUMPHREYS. Mr. Chairman, I move to strike out the last word. I agree with what the gentlemen from Illinois (Mr. Mann) has said. I just wanted to call the attention of the chairman to this proviso, "that no part of the appropriation shall be available for demonstration work," and so forth, except upon a 50-50 basis.

Mr. GOOD. That is current law.

Mr. HUMPHREYS. Yes; that is current law and I very seriously doubt the wisdom of it. The Federal Public Health Service, in my opinion, is thoroughly justifiable. It is a Federal activity that has done great good. It is economy to do the things that are done by the Public Health Service. It is very much more sensible to have a bureau here make investigations and secure information for all the states than it would be to undertake to have 48 separate ones doing the work in the states. I believe they ought to get information on the various subjects relating to the public health, for the treatment of pellagra, typhus and for rural sanitation, and so forth. Having gotten that information, I think the Public Health Service ought to make it available to the state boards of health so that they may use it, telling them "here is our experience, here is the result of our investigations carried on everywhere. We give the information, and the state board can use it if it wants to do so." We put it on the 50-50 basis. What is the result? We have the example before us a little further on in this bill. We appropriated money under this Interdepartmental Social Hygiene Board, I think it is called. The condition was that this money would be available to the states on the 50-50 basis. Part of that money has been wisely expended, I think, especially that under the direction of the state boards of health, because they have an organization in the states already, and they can administer that fund wisely—that part that was allotted to the Public Health Service. The legislatures come along and they make an appropriation.

Say a state is to receive $20,000 for its allotment, the legislature makes an appropriation of $20,000 to match that, but they put the proviso in there that it is so to match the Federal appropriation. Now, Congress some day, as we are doing today, will find out, or conclude, that it will not appropriate any more funds. The money appropriated by the states is then not available, because it has been made contingent upon an appropriation by Congress. And the whole service falls. That is exactly what is going to happen under the activities heretofore authorized. As I understand, a certain amount of the $1,000,000 appropriated, under the subtitle, "Interdepartmental Social Hygiene Board," was to be expended under the direction of the state boards of health on a 50-50 basis. The legislature makes an appropriation to match the allotment of $25,000 or $40,000 or $50,000 or whatever it happens to be. Many of them, so far as I am advised, so worded their appropriation that it is not available unless they get the Government's 50 per cent. The legislatures adjourn and do not meet for two years, and the appropriation by Congress goes out on a point of order, or it is not the judgment of Congress, that the appropriation shall continue.

The Chairman. The time of the gentleman from Mississippi has expired.—*(J. A. T.)*

Supreme Court. The Harrison Anti-Narcotic Act.—The Supreme Court of the United States has decided that the issuance of a prescription for a habit-forming drug by a physician not "in the course of his professional practice only" is a sale of the drug and a violation of Section 2 of the Harrison Anti-Narcotic Act. The prescriptions were issued by the defendant, a physician, to persons who were not his patients and not previously known to him and who were professed drug addicts.

The defendant was a Chinese physician of Pittsburgh and registered under the act so as to be allowed to dispense or distribute opium and its derivatives without a written order in official form "in the course of his professional practice only." The evidence tended to show that he worked in collusion with a particular drug store in Pittsburgh. He was convicted and appealed to the U. S. Supreme Court on a writ of error on the ground of the unconstitutionality of the Harrison Anti-Narcotic Act. The Court ruled that his acts were sales of the drug and not prescriptions within the bounds of his professional practice and so upheld the verdict. The complete opinion is given in the United States Public Health Reports for December 24, 1920.—(*J. A. T.*)

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Colorado.—Bills relating to the public health were introduced into the Legislature almost at the moment of its convening. One bill, that presented by Dr. Minnie C. T. Love of Denver, would provide for a state industrial home and training school for women suffering from venereal diseases and addiction disease. Another bill, with the same sponsor, would penalize a woman of legal age who lures a minor youth into improper relations. Senator W. W. King, a physician of Cripple Creek, introduced a bill to make more rigid the requirements governing therapy. He claims that under present laws juries will seldom convict quacks because it is argued that the statutes are not applicable. Representative Iver H. Dailey has presented a bill which will bring chiropractors under the control of the State Board of Medical Examiners. Representative George A. Pughe is sponsor for a bill in the House to make a two-tenths mill tax levy to raise $600,000 to meet the Rockefeller offer of coöperation in building the University of Colorado School of Medicine, now in prospect. Senator Walter F. O'Brien of Leadville is responsible for a bill making it a misdemeanor with serious penalties to refuse to rent to families having children. Senator Hugh Steele of Denver placed before his branch of the State Government a medical inspection bill, the purpose of which is to provide a physician, a nurse and a dentist in each school district, but limiting the amount to be expended on these services to 1 percent of funds available for school purposes. Representative Blackwell's bill provides for licensing wholesale druggists to sell spirituous liquors for medicinal or sacramental purposes and regulating the sales by retail druggists and others.

Of a good deal of importance as indicating the spreading activities of the Medical Liberty League, Senator John Stephen has presented a bill that provides that everyone shall have the right to choose any kind of medical treatment he desires. This bill would virtually abolish compulsory vaccination.—*Dillon.*

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District of Columbia.—S. 4780 was introduced into Congress, which governs the District, by Mr. Fletcher on January 5. It is a bill to regulate chiropractic. It provides for a board of examiners, who shall represent the various schools of chiropractic. Practitioners are to be licensed after examination. According to the provisions of the bill anyone with any kind of an education or no education at all can get a license. It represents the vicious type of short-cut to the so-called practice of medicine. The bill was referred to the Committee on the District of Columbia.—(*J. A. T.*)

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Indiana.—There is before the State Legislature at the present moment a full-time health officer bill. Its general features are that it is permissive and not mandatory, that any county may establish a full-time health officer and a full-time nurse on following certain legal courses; that counties with a population of 10,000 or more may unite in such action and that cities of 10,000 population may by ordinance provide for such health officer and such nurse. The term of these officers and nurses shall be four years

and the appointments shall be made from an eligible list provided by the State Board of Health. A provision of the bill requires that county health commissioners, joint county health commissioners and county and city nurses appointed under the bill shall give their entire time to the work and shall not engage in the practice of medicine or nursing or actively in any other profession or business. The powers and duties provided in the bill are essentially the same as those now existing, the salaries are to be fixed by the appointing powers, the county commissioners or the city councils. Counties and cities are empowered to establish and maintain bacteriological laboratories.

The bill is opposed by various agencies which have opposed legislation in the past here and in other states. It is said that there are four hired lawyers in the state organizing "Leagues for Medical Freedom," with the argument that the regular medical practitioners are conducting a battle against all other cults. The result of these efforts is a flood of letters to the members of the legislature which cannot help having influence on their views concerning public opinion.

The defeat of the bill last year designed to secure pure milk in the state is credited to the same agencies. The bill required that milk should not be sold for domestic consumption unless it was from tuberculin-tested cattle, and collected in a cleanly way, or else pasteurized.

House Bill No. 140, the Nurses' bill, provides in the first place for an educational director, who is to assist in establishing the courses for training schools; next, it permits specialization during the third year of training in public health nursing, such as executive work, infant welfare, etc.; and third, it permits the training of attendants and the registration of the same. The control of registration of nurses remains in the hands of women who are registered nurses.

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Ohio.—In Ohio the courts have upheld compulsory vaccination. The *Cincinnati Sanitary Bulletin* gives these facts: On November 22 the Board of Education voted to exclude children from school for failure to be vaccinated. A case came for trial in the Juvenile Court under a section of the laws which defines a dependent child. Judge Charles W. Hoffman sets forth the legal points and holds that the Board of Education has a right to exclude children from school for non-vaccination; that parents of children excluded cannot be prosecuted under the compulsory vaccination act, but at the same time exclusion does not relieve parents of their obligation to provide a proper education for the children. On trial of the case, the Court decided that failure to comply with requirements of the Board of Education which caused the child to be excluded from school constitutes a negligence to provide proper education for the child. Being a novel case, the court decided that it would not declare the child to be dependent and thus made a ward of the Juvenile Court until further opportunity had been given to his parents to comply with the requirements of the Board of Education. A definite date was set in the future for the declaration of the child to be dependent, but if by or before that time the parents had made proper provision for giving the child his education the case would be dismissed.

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Texas.—The following legislation is under way, being represented by bills now before the Legislature:

An act giving power to the State Board of Medical Examiners to revoke the licenses of physicians who have been convicted of felony; an act to regulate and make sanitary buildings and rooms used and occupied as a bakery for the manufacture of bakery products; an act to regulate the operation of hotels, cafes, restaurants, dining cars, other eating places, bakeries and meat markets; an act to regulate the operation of barber shops and beauty parlors; an act to appropriate $300,000 for the establishment of a State Tuberculosis Sanatorium for negroes; an act to transfer the Dairy and Pure Food Department to the State Health Department; and one to amend the nursing law and raise the standard of nurses.

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Texas.—M. M. Carrick, M. D., Colonel, Medical Corps, U. S. A., has been appointed State Health Officer of Texas by Governor Neff and will assume his duties as soon as he secures his release from service. He succeeds Dr. Oscar Davis, who was appointed by Governor Hobby.

STATE HEALTH NOTES—GENERAL

National.—At a meeting of a number of national voluntary health agencies held in Washington on December 10, 1920, a National Health Council was created, a form of organization approved, and a constitution and by-laws adopted. In accordance with the by-laws adopted by the Council, each member organization has appointed one representative and one alternate. The original members, with corresponding representatives and alternates, are as follows:

American Public Health Association. Representative: Dr. Lee K. Frankel. Alternate: Dr. M. P. Ravenel.

American Red Cross. Representative: Dr. Livingston Farrand. Alternate: Dr. E. A. Peterson.

American Social Hygiene Association. Representative: Dr. William F. Snow. Alternate: Mr. Bascom Johnson.

Council of State and Provincial Health Authorities. Representative: Dr. C. St. Clair Drake. Alternate: Dr. E. R. Kelley.

Council on Health and Public Instruction of the American Medical Association. Representative: Dr. Watson Rankin. Alternate: Dr. Frederick R. Green.

National Child Health Council. Representative: Dr. Philip Van Ingen. Alternate: Mr. Courtenay Dinwiddie.

National Committee for Mental Hygiene. Representative. Dr. Thos. W. Salmon. Alternate: Dr. Geo. H. Kirby.

National Organization for Public Health Nursing. Representative: Miss Edna L. Foley. Alternate: Miss Mary S. Gardner.

National Tuberculosis Association. Representative: Dr. Charles J. Hatfield. Alternate: Dr. J. Alexander Miller.

The by-laws provide that "other national health organizations may hereafter be elected to membership by two-thirds vote of the members." Provision is made for advisory members, and it is probable that the International Health Board, and official agencies like the U. S. Public Health Service be associated in this way with the Council.

The organization conference on December 10, referred to above, approved of the following list of activities, as indicating the legitimate field in which the Council might function:

1. A special information bureau.
2. A legislative bureau.
3. The coördination of health activities.
4. Periodic joint conferences.
5. A statistical bureau.
6. The development of educational health material.

The Council is the outgrowth of many efforts in past years to coördinate national voluntary health organizations, in which the A. P. H. A., the A. M. A. and other agencies were interested. With the financial aid of the Red Cross, Dr. D. B. Armstrong carried out a health coördination study during the summer of 1920, under the direction of Dr. Charles J. Hatfield, Dr. Watson Rankin and Dr. Livingston Farrand.

The officers elected at the December meeting are: Chairman, Dr. Livingston Farrand; Vice-Chairman, Dr. Lee K. Frankel; Recording Secretary, Dr. C. St. Clair Drake. The election of a treasurer was deferred until further consideration could be given to the whole question of financing the project.

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Arkansas.—Dr. J. T. Clegg of Siloam Springs has resigned as a member of the State Board of Health, and Dr. Leonidas Kirby, of Harrison, has been appointed his successor.

The following members of the State Board of Health, whose terms expired December 21, 1920, were appointed to succeed themselves for four years: Dr. F. O. Mahoney, El Dorado; Dr. O. L. Williamson, Marianna; Dr. H. L. Montgomery, Gravelly.

The 75-bed, fire-proof building, formerly occupied by the Boys' Industrial School, has been turned over to the State Health Officer, by a proclamation issued by the Governor, Charles H. Brough, to be used as a State Isolation Hospital for Venereal Diseases. The next general assembly, just convened, will be asked to make an appropiation to repair, equip and maintain this hospital for the purpose stated. It is thought that this is the first state institution for this purpose established in the United States.

California.—In the Bulletin of the California State Board of Health attention is called to the existing need for public comfort stations which is accentuated by prohibition. Dr. W. J. Hanna, City Health Officer of Sacramento, presented a summary of the situation at the recent conference of state, county, and municipal health officers at Chico. He notes that, since the prohibition law went into effect, saloons on prominent corners of our cities have disappeared and have been replaced in the majority of cases by cigar stores and various lines of business which fail to provide facilities for men; this also applies to the numerous road houses along our highways which formerly provided accommodations for the public. In the construction of state highways this provision has evidently been entirely overlooked and has caused distress and embarrassment on many occasions.

It is the duty of the state and municipalities to look after the health and comfort of the people, but in the past this important matter has been given little or no consideration.

Dr. Hanna suggests that to overcome the objection to comfort stations being possibly too prominent in congested sections of a city it might be found advisable to have them underground with entrance similar to those of a subway. The ideal comfort station is one that is equipped with drinking fountains, toilets, telephone booths and rest rooms.

On the public highway, stations could be placed at intervals of twenty-five miles and be under a caretaker who could visit them daily, looking after sanitary conditions and general equipment; a work which could be accomplished by one man, with the aid of a motorcycle, who could cover a long stretch of country.

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Illinois. Dr. Rawlings Appointed Director.—Dr. Isaac Donaldson Rawlings of Chicago has been appointed by Governor Len Small to succeed Dr. C. St. Clair Drake as Director of the Illinois State Department of Public Health. The State Senate immediately confirmed the appointment and the change became effective February 1, 1921.

Dr. Rawlings accepted the commission of Director of the State Department of Public Health after 20 years of successful public health service in connection with the Chicago Department of Health. He graduated from the College of Medicine of Northwestern University in 1893 and rounded out his medical education with post-graduate courses in the medical universities at Vienna, Berlin, London, and Dublin. Since that time he has taught medicine for many years at Northwestern University. In 1918 he was appointed by the Federal government, as a dollar a year man, to direct the activities of 200 doctors of Chicago in connection with the influenza pandemic.

Dr. Rawlings was born April 29, 1869, at Carrollton Ill., and spent his youth in Jacksonville, Ill.

The Semi-Annual Report from the Division of Laboratories of the State Department of Public Health, shows that 25,588 specimens were examined in the diagnostic laboratories during the last six months of 1920. This represents practically double the volume of diagnostic work done by the State laboratory during the same period last year and more than four times that of corresponding periods in former years.

The Community Council of Moline announces the addition of a dietitian to its corps of public health workers. This service will be a distinct asset to the nursing service carried on by the eight nurses now employed. It will be especially helpful in connection with the medical inspection of school children and the infant welfare clinics. Moline now maintains one of the most efficient health centers in the country.

During the past year it has established clinics for the removal of tonsils and adenoids, for tuberculosis, and venereal diseases. These are in addition to infant and child welfare clinics already existing. All of these clinics are housed under one roof.

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Indiana.—The Legislature of the State of Indiana has expressed its appreciation of the quality of the work of the State Board of Health by various increases in the appropriations over those of last year. This in the face of the evident tendency to economy is of interest. The different additions that have been made for the current year in the appropriations include $10,000 more for the Tuberculosis Division, and

$10,000 for the Division of Infant and Child Hygiene, while for the Venereal Disease Division the increase is $13,000 and $25,000 besides for a special program to be cared for between March 1, 1921, and October 1, 1921. The salary of the Secretary has also been bettered by $1,000, bringing it up to $4,000.

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Kansas.—The December Bulletin of the Kansas State Board of Health is largely devoted to the work of the health car, "Warren." This useful aid to public health education has felt the pressure of hard times, and in personnel its resources have been lessened while on account of increased cost of mileage and moving it has been able to stop only at longer intervals. This is unfortunate, since it can often do its most desirable work at the small country village to which other agencies are denied. The general line of helpful work that is undertaken is first, the awakening of the community to its health needs and the possibilities of caring for them; individual help to mothers, a very useful feature and in many places not supplied in any other way; general health instruction of the adult public and of the children; and finally substantial aid in the determination of the physical disabilities of the young people.

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Maine.—The Maine Public Health Association has made a determined appeal to the State Legislature this year for adequate support of proper health measures. It is making this effort through the individual letters to legislators from interested citizens who are informed in the matter by the Association. Three points are made in the appeal; that it is necessary to protect childhood from disease and that health and education must be the foundation stones of any real progress. At the present moment it costs about $1,000,000 annually to care for children and others in institutions, and these figures are constantly increasing. It is possible, it is argued, to lessen this burden by preventive work and the Legislature is urged to back the State Health Department in its programs. There is much to be done in the state, there being, for example, no less than 47 communities that are without a physician. The method of alleviating a portion of this distress by means of the winter nursing service in the archipelago along the coast of the state has already been made known, through the *December* NEWS LETTER, and service such as this may be of greatest benefit to the health of the citizens.

Since the health law went into effect a year ago requiring every town in the state to employ at least a part-time health officer, 11 women have been appointed part-time health officers in different communities.

The report of the diagnostic laboratories of the State Board of Health show an increase in examinations to more than double the number in 1918, being 13,191 against about 6,000. A fair share of this is in the greater number of examinations for venereal diseases than formerly. The laboratory service is free to citizens of the state.

Two important special pieces of work have been carried on the past year, the inspection of hotels and lumber camps and the testing of domestic water supplies. Maine has many lumber camps and these wherever they may be situated in any state have been health risks to the rest of the state. Maine derives so much revenue from summer visitors that it has been deemed a wise economic movement to look after the sanitary conditions of the hotels.

✚

Michigan.—The city of Flint, Mich., is undertaking to secure a better supply of milk by means of educating the milk producers to the important points in sanitation and hygiene connected with their business. Letter No. 39, which bears the imprint of February, 1921, calls attention to the fact that the stabling of cows for the winter months is always accompanied by a large increase in the sediment found in the milk supply. The reason for this is that the cows are at this season absolutely subject to their herdsmen. If they neglect the animals the latter will show the results in the lessening of the supply of milk and the presence of dirt. Since one impure consignment of milk may affect the whole supply of a milk dealer for the day, uncleanliness is much more than a matter in which the responsibility ends with the farmer. "A person who willfully neglects to take proper precautions with milk," the

letter goes on to say, "is not only doing himself and his family an injury, but is imposing an injustice upon every other milk producer by creating a feeling against milk in general."

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Minnesota.—The Division of Venereal Diseases of the Minnesota State Board of Health makes report of its proceedings for the past year and in connection with this it calls attention of physicians in the state to the nature of the Wassermann test. It calls attention to the fact that some specimens have been divided by the physician and submitted under different names with perhaps opposite reports on the two portions. In this connection the physicians are referred to the paper on the Wassermann test in the *Journal, A. M. A.*, for January 1, 1921, by Rhodenburg, Garbat, Spiegel and Manheims. The statistical summary of the work of the Division shows that there are approximately 3,000 physicians in the state, of whom 1,500 have reported venereal disease cases during 1920. In the clinics of the Division 2,261 patients have been given 32,602 treatments; 3,866 cases have been handled by the Social Service Subdivision, and many sources of infection have been examined and treated. Laboratory examinations have increased from 200 in January, 1920, to 2,000 in December. The Educational Subdivision has distributed 167,000 pamphlets; has given 108 lectures with total audiences of 3,200 persons; has had 132 showings of educational films to more than 40,000 persons and nearly 500 exhibitions have been given with an attendance of more than 73,000. Educational work has been carried on in 178 towns in the state.

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New Jersey.—Some 56 nurses are in attendance at the post-graduate child hygiene course given at the State Normal School in Trenton in coöperation with the State Department of Health. The State is interested, since there is opportunity to create a staff of nurses who carry into their work increased interest and a broader knowledge of the problems to be encountered. With these women for the leaven it is hoped that public health education may become a vital force in the state.

The Bureau of Child Hygiene, which is the department of the State Board undertaking this work, has prepared a "Bibliography of the Care and Feeding of Infants and Children," which is tentatively published for the information of nurses and teachers, for fathers and mothers, for boys and girls, for the school committee and superintendent and "for everybody," to which are appended a few titles for social workers and a few handy lists, one of these being the names of publishers who have specialized in various divisions of health literature. The Bureau will be glad to have practical suggestions towards bettering the bibliography in later editions.

The Trenton Branch of the Red Cross has donated the sum of $7,000 for a malnutrition demonstration in the schools of that city. The schools range from a minimum of 8% malnourished to a maximum of 43%, about one-fifth of the children being 10% below the normal average weight for height. The purpose of the demonstration is to accumulate sufficient data so that nutrition may be included as a regular item in the school program.

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New York.—The plans for the meeting of the Medical Society of the State of New York now include making the week a health week in the Borough of Brooklyn. The date of the meeting is set for May 2-5, 1921, and the project is receiving the hearty approval of the State Department of Health through Commissioner Hermann M. Biggs, who promises coöperation on the part of the State and of the New York City Department of Health, which, through Commissioner Royal S. Copeland, offers every assistance in giving emphasis to the undertaking. There is to be a very ambitious exhibition in connection with the meetings, the gathering place to be the Armory of the 23d Regiment in Brooklyn.

✚

Virginia.—During February more than one thousand local leagues, which are members of the Coöperative Education Association of Virginia, have been following a program of health education, prepared by State Health Commissioner Ennion G. Williams. Sanitation is emphasized, as is also prevention of nose and throat diseases, care of domestic water supplies, necessity for vaccination and the benefits of good ventilation.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Comparison of an 8-hour Plant and a 10-hour Plant.—Goldmark and Hopkins make a four-page reply to criticisms which have appeared on their bulletin, No. 106, United States Public Health Service, which discussed the comparison of an 8-hour and a 10-hour plant, for reasons given in this reply. The writers contend that the plant running on the 8-hour schedule showed a remarkably steady maintenance of output; the factory running on the 10-hour schedule showed a marked decline. Under a shorter schedule, their findings warranted the conclusion, that human beings work nearer to capacity, and that greater concentration of effort is the conclusive response to shorter hours. The writers strongly defend the care and exactness with which the original data were studied and the conclusions drawn, making allowance for the difference in character of the two plants compared. In the case of both output and accidents, the difference in hours persisted as a steady factor in the contrast between the two plants. Thus, in respect to output, the quality of labor at the two plants may be considered practically on a par. In respect to accidents, the quality of the management of the two plants may be considered practically identical.

"Thus, when we eliminate the variant of labor, we find differing management insufficient to explain our contrast in working capacity as tested by output. When we eliminate the variant of management, we find a differing labor force insufficient to explain our contrast in working capacity as tested by accidents. For the major factor of the contrast we are brought back to the differentiating element steadily present in our study, the length of hours." "The writers of the Bulletin, on the evidence in hand, stated conclusions as indicated to their minds by the facts, inviting further and more inclusive research to confirm or refute them."

Inasmuch as the value of the report has been questioned, the writers state: "To sum up, then, the value of the report may be said to lie in (1) the volume of authoritative fact presented, (2) the new or revised technique of the investigation, (3) the precision of presentation aimed at, and (4) the stimulus which it in turn, following the British reports, may exert in leading to further exact research into the central and most neglected problem of production, the human factor."—Josephine Goldmark and Mary D. Hopkins, *The Journal of Industrial Hygiene*, Volume 11, No. 9, January, 1921, pages 348-351.

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New Features in Connection with the Inhalation of Rock Dust.—"Development of silicosis in the absence of exposure to risk had previously been suspected, now it is a proven fact," according to the report published from the Rand. "Miners of many years' standing, who had but slight apparent damage to the lungs on leaving, showed definite physical signs upon their return from military service and in more than one instance a miner of long service, who left with apparently a normal chest, returned in a condition of fully developed primary silicosis."

"Tuberculous infection will often bring about a rapid development of silicotic changes in the lungs of a miner who has habitually inhaled siliceous dust but who may have hitherto shown little or no indication of pulmonary damage.—In these cases one might almost say that the *tuberculosis has 'predisposed' to the silicosis;* and such a statement is, indeed, true in its literal sense with respect to men who are the subjects of tuberculosis before they begin hard-rock mining." The statistics accumulated do not yet indicate any beneficial results from the recent improved conditions of underground work, but same are hardly yet to be expected. "The value of initial examination, which commenced September, 1916, and has been applied to 5175 men (of whom 2741 are known to be in underground employment), is clearly shown by the fact that only one has developed tuberculosis and no one silicosis. If this remarkable record is maintained the disease will be swiftly eradicated from the mines."

Abstract by *The Lancet*, January, 1921, No. 5079, page 37 from the *Annual Report of Miners' Phthisis Board, Union of South Africa*. Capetown, 1920.

Industrial Fatigue.—It is not easy to define the term "Industrial Fatigue." The term embraces not only fatigue met with as the result of work in other walks of life, but embraces the conditions of inefficiency in the factory whether due to mechanical work or to the worker himself. The actual cause of fatigue falls into two categories: the using up of available energy-producing material; and the accumulation of waste. The first of these is not the most important since the fatigue of muscles and nerves is much less often due to the exhaustion of stores of available energy which are plentiful in the body than to "fatigue bodies". affecting the extraordinary delicacy of nerve cells. Symptoms similar to fatigue sometimes appear in an individual where the tasks performed seem inadequate to explain them. For instance, very numerous conditions found in factory life which are likely to result in a disturbance of the digestive function so that partial poisoning of the body arises from abnormal digestive products. The preparation of food by the wives of laborers is an important phase. Factory lighting, heating, ventilation and the distraction due to noise (also noise occurring during hours of sleep) are all important side features. Unlike engineers' machinery, the machinery of the body never stops. There is another process in repair of the inanimate machines, viz., *"recovery,"* which is probably due to the renewal of energy-producing material and a sweeping away of waste. When an organ or part functionates Nature may send five times the ordinary amount of blood to that part. It must be realized that *recovery is always in progress,* even during the most arduous work, and it is this fact that makes possible any prolonged spell of labour.

Tests for fatigue are difficult for it is impossible to say "how tired" a person is, or to express the same even in practical terms but it is possible to obtain a *comparative* expression, and to state definitely that a *person is, or is not, more fatigued* at one moment than at another. Thus each person can be made to serve as a standard to himself, with which he is compared. While the value of this method is limited yet the real question is whether a person is less or more fatigued at one moment than at another, so that the method is capable of extensive use, and is more reliable than any estimate of the condition based upon output. It is true that fatigue is an important limiting factor of output, and where readings are taken over a sufficient length of time and from a sufficiently large number of persons, valuable indications may be secured in output; also from the short trend of wages. A greater significance may be gained from the examination of sickness returns which are the measure of diminished resistance of employees. In the same way records of lost time and numbers of persons late are factors. Finally, accidents as an index of the grade of fatigue is important, but accidents are dependent on so many causes that they are misleading as a sure guide.

The proper length of the working hours is a question which is yet beyond our reach. The ideal is not merely output, since the workers' welfare is equally important. "How great must have been the astonishment of those who, for years, had sacrificed everything to great output, and in pursuit of it had lengthened hours till the workers groaned, to find at last when shorter hours were introduced that output was increased! Yet a little thought might have shown us the probability years ago; it is only because the physiologist, expert in knowledge of the human machine, was not consulted, that progress was delayed. And today the same may be said of the demand for any general statement with regard to the proper length of the working day. We may say a man should not be tired beyond a certain point; the amount of work that will produce that tiredness will vary enormously with conditions."

A factory making elastic webbing employed 300 men and women, and records were taken over a five months' period. For the first month the hours were 56¾ per week, for the rest of the period 50¾. During the long hour period of April more persons were late and more time was lost. Saturday's lost time was remarkable and probably due to deliberate action on the part of certain workers who preferred to devote themselves to their gardens rather than to attend the mill. However, the cause of Saturday's lost time ceased to be of importance as soon as working hours were shortened. The "Monday effect" of lost time was noticeable throughout the five months and was relatively greater after the change to shorter hours than before. This seems to show that this Monday effect is due to some other cause than merely length of working

hours and consequent fatigue. It is of sufficient magnitude to affect output appreciably, and it merits further inquiry on purely economic grounds. A most important result of the change to shorter hours (six hours less per week) was the difference between "overload" and "not overload." The workers were "overloaded" under the long hours as shown by the large variations in the lost time and late curves, by their discontent and by their agitation for shorter hours, which disappeared on shorter hours, being replaced by contentment, flattening out of the curves, and by the fact that output was increased. The indications are that the "best length of week" and the "optimum load" had been approached. Finally the shortened day occupation became more productive than the longer. The increase was moderate, but that it should occur at all is proof that the old conditions were not ideal; 6 hours taken from the week also was followed by a great decrease in sickness, and it is reasonable to believe that cause and effect were here.

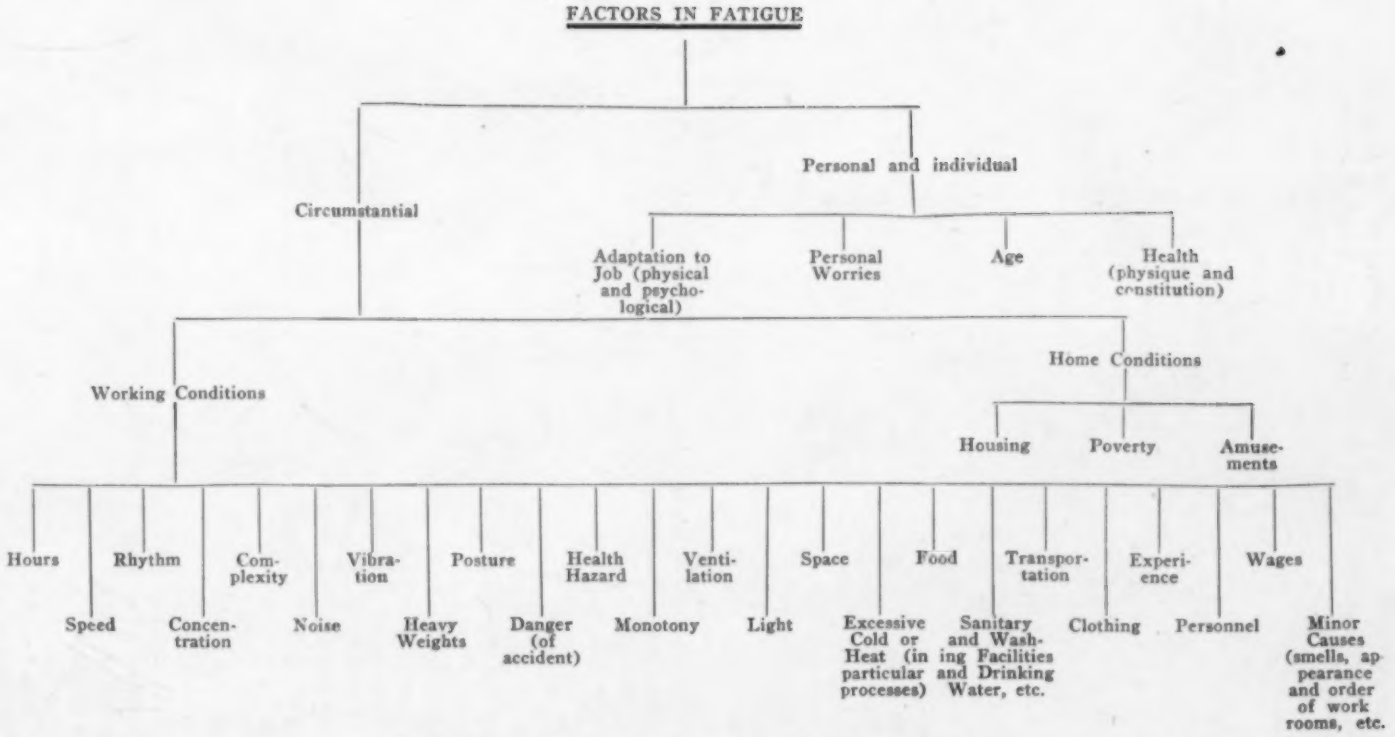
In another plant hours were shortened from 54 to 48, and there followed a remarkable increase of output—44% and at the end of the period of observation showed no signs of dropping. "How can this be possible when working hours are less?" The answer is simple, and depends once more on hours lately wasted. During the period of long hours the average time lost per week by each worker was from 10 to 12 which average fell to 5 on the shorter work period so that the actual number of hours worked per week remained the same.

"What is required at present is that investigators should enter the field and carry out researches in particular directions, in order that our knowledge may be widened and made applicable to all industrial processes." These investigations must be carried out not by individuals, since no single person possesses the wide knowledge necessary, but by groups of individuals. A. F. Stanley Kent, *Jour. of State Medicine*, Vol. XXXVIII, No. 9, Sept. 1920, pp. 261-73.

✣

The Common Sense Summing Up of Preventable Causes of Fatigue.—The accompanying diagram "Factors in Fatigue"* is from the reprint from "*Industrial Canada*" for December, 1920, and was prepared by Mr. R. N. Hutton, Secretary, Committee on Industrial Fatigue, Honorary Advisor Council for Scientific and Industrial Research, Toronto, Canada. —The writer states the chief cause of fatigue is the question of *adaptation (both physical and psychological) of the worker to his job.* Other causes, more concrete, are those connected with working conditions and those connected with home conditions. Six groups of causes are stated as follows: (1) Hours of Work.—It obviously does not make for economic production habitually to pay full wages to employees for time when owing to fatigue they are not doing full work. Purely for its own prosperity it is necessary for each industry to discover what is the "right" length of working day for its employees. Common sense at the bottom of all questions of hours of work is well seen in a statement of a British foreman about Sunday work at double pay during the war. He held that it "gave six days' output for seven days' work at eight day's pay." (2) Environment, as applied to ventilation, light, space, extremes of temperature, disagreeable smells and psychological factors. (3) Physical and Nervous Strain as regards speed, rhythm, rest periods, concentration of the faculties, complexity of movements, lifting, posture, noise and vibration, monotony, accidents and health hazards (poisons). (4) General Health Maintenance as regards food and its preparation, sanitary facilities, transportation, and suitable clothing. (5) Psychology—*Mal-adaptation of a worker to his job*—inherent inaptitude, inexperience, personnel, such as type of foremen and "anti-social" character of certain workers, and erratic management. (6) Wages—"No sane employer who knows his own nature and judges his employees accordingly will expect whole-hearted and full strength service from harassed, underfed, badly-housed, insufficiently clothed men and women." Holding the actual wages paid as one factor, in the majority of cases a more subtle factor concerns education in the spending of the wage. Both call for consideration and *in his own interests* the second is as much the employer's concern as the first.

*See Page 298.



(Common Sense Summing Up of Preventable Causes of Fatigue)

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Involvement of Nervous System During Primary Stage of Syphilis. — Deviations from the normal in the spinal fluid of 221 cases of syphilis in which only the chancre was present were found in 49 cases, or 22% of the cases examined. Increase in globulin and albumin virtually parallel was the most constant of the abnormal findings, occurring in 25 of the 49 cases. Pleocytosis was the next most frequent finding, occurring in 12 cases. The positive Wassermann test in the fluid occurred less frequently than the other two findings, being present in but eight cases. Within certain limitations any single one of the above-mentioned deviations from the normal occurring alone must be regarded as evidence of early central nervous system involvement.—Udo J. Wile and Clyde K. Hasley, *Jour. A. M. A.* 76, 8, (1921).

✣

Precautions Necessary in the Selection of a Donor for Blood Transfusion.—All individuals may be grouped broadly into four main groups. These groups are established by the presence of two "chief" agglutinins in the serum and receptors for these agglutinins in the cells. Besides "chief" agglutinins, "minor" agglutinins have been demonstrated. Ninety-seven percent of adults have agglutinins in their serums. They are, however, present in 13% of new-born infants. Only 25% of new-born infants have cells that can be agglutinated, as compared to 50% among adults. The full quota of agglutinins and receptors is acquired between the third and fourth years of life. Incompatibility between the blood of a mother and her new-born infant occasionally occurs. It is unsafe, therefore, to omit testing the blood preliminary to transfusion, even though the mother should act as donor. It is not advisable indiscriminately to use the so-called "universal donor" as severe reactions have been observed following the use of donors of Group IV for patients of other groups. The rouleaux-formation substance, even though acting on the donor's cells, is apparently harmless, and no untoward results have been seen following such transfusions. It is unsafe to perform a transfusion, relying simply on the fact that the donor and patient are of the same group. Preliminary to transfusion, the blood of every patient should be grouped and then tested directly against that of the prospective donor.—Lester J. Unger, *Jour. A. M. A.*, 76, 9, (1921).

✣

The Wassermann Test and Its Limitations.—The Wassermann test is not infallible, and its value is greater when its limitations are clearly comprehended. Some of these limitations are dependent on technical details with which the clinician must familiarize himself until the time arrives when all serologists agree on a standardized technic. Other limitations are dependent on the biologic processes involved. Accepting the test as diagnostic in the vast majority of cases, it also serves as an indication of the success of treatment. The data presented emphasize that the earlier treatment is instituted and the more vigorous the early treatment is, the greater the likelihood of obtaining a serologic cure.—G. L. Rohdenburg, A. L. Garbat, Leo Spiegel and P. J. Manheims, *Jour. A. M. A.*, 76, 14, (1921).

✣

Vital Staining of the Metachromatic Granules of the Diphtheria Bacillus.—By the use of Nile Blue, 9 parts to 1000 of saline, the authors were able to stain live diphtheria bacilli. A hanging drop of the culture, made faintly blue by the dye, shows in 5 to 15 minutes, blue bacilli with red to violet granules.—*Arloing and Richard. C. R. Soc. Biol.* 1920, 83, 267.

✣

Abderhalden's Test and the Diagnosis of Renal Tuberculosis.—The results with the test were disappointing. It was impossible to distinguish an acute or chronic nephritis from renal tuberculosis.—F. Wauschkuhn, *Deutsche med. Woch. schr.*, 46, 711 (1920); *Jour. A. M. A.*, 75, 967. (1920.)

Simplified Culture Medium; Caseinogen.—The preparation of a dry nutritive powder from caseinogen does not require the addition either of peptone or extractives but may be made up into solid nutritive medium merely by the addition of agar and normal saline or tap water. It is obvious, therefore, that it would be extremely useful for field workers both on account of its portability and the extreme ease with which it can be made into culture medium. It is suggested that the name "trypsinoids" be given to the powder. Similar experiments with ordinary brewers' yeast fresh and dried are described but it would appear under the conditions tried that caseinogen yields the more nutritive powder of the two.—D. Norris, *Ind. Jour Med. Res., Calcutta*, 7, 704, (1920); *Jour. A. M. A.*, 76, 69, (1921).

✚

Properties of the Hemotoxin of Streptococci.—The hemotoxin of streptococcus is a labile substance affected by centrifugation or shaking. It is adsorbed by various organic and inorganic substances. Hemotoxin is produced within a wide range of hydrogen-ion concentrations. It is neither in nor on the bacterial cell but is free in the culture medium. It is probably only an enzyme. There are at least two substances which are essential to the medium for the elaboration of hemotoxin, one of which is phosphorus; the other is a substance of unknown composition. The unknown component is present in small quantities in unfiltered muscle infusion, but is more abundantly supplied by blood serum and kidney infusion. This substance is not an albumin, globulin, primary or secondary proteose, metaprotein, or peptone of the medium or enriching fluid. It is water-soluble, is destroyed by boiling in alkaline solution and by prolonged heating, and is removed to a considerable extent by passage through a diatomaceous filter.—Percy D. Meader and George H. Robinson, *Jour. Exp. Med.*, 32, 639, (1920).

✚

Biological Study of the Hemophilic Bacilli.—The hemophilic bacilli can be divided into two large groups according to the ability of certain strains to produce hemolysis. Both the hemolytic and the non-hemolytic groups may be further subdivided according to the ability of some strains to produce indole, to form gas, and to ferment certain carbohydrates. The hemophilic bacilli of both the hemolytic and the non-hemolytic varieties when grown in meat infusion broth containing 1% of dextrose reach a final hydrogen-ion concentration of about pH 6.4. In addition, practically all the strains possess the power to reduce nitrates to nitrites.—Ernest G. Stillman and Janet M. Bourn, *Jour. Exp. Med.*, 32, 665, (1920).

✚

Studies on Experimental Pneumonia.—*Bacillus influenzæ* can initiate in normal monkeys an acute infection of the upper respiratory tract which may be complicated by acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs, bronchiolitis, and bronchopneumonia. This disease appears to be essentially identical with influenza with respect to its clinical course, symptoms, and complications. The etiologic relation of *Bacillus influenzæ* to acute sinusitis, tracheobronchitis, bronchiolitis, and bronchopneumonia is established. Although it seems reasonable to infer from the results of the experiments that *Bacillus influenzæ* is the specific cause of influenza, a definite conclusion is not permissible, since it is impossible to determine whether the respiratory disease produced in monkeys with *Bacillus influenzæ* is identical with influenza or merely similar to it. The experiments are advanced, therefore, as evidence in favor of the etiologic relation of *Bacillus influenzæ* to influenza. Virulent influenza bacilli, when injected into the nose and throat of monkeys (*Cebus capucinus* and *Macacus syrichtus*), excite an acute inflammation of the upper respiratory tract, characterized by swelling and hyperemia of the mucous membrane, infiltration of the mucosa and submucosa with leucocytes, desquamation of epithelial cells, and the production of a mucopurulent exudate. The accessory sinuses are often implicated in the infection. Experimental *Bacillus influenzæ* infections of the upper respiratory tract are frequently accompanied or followed by bronchiolitis, peribronchial infiltration, and bronchopneumonia with hemorrhage and edema in the early stage, emphysema and bronchiectasis in the later stages. In general, the process closely resembles uncomplicated *Bacillus influenzæ* pneumonia in man. The injection

of virulent influenza bacilli directly into the trachea of monkeys induces in them an experimental bronchiolitis and hemorrhagic bronchopneumonia, similar in all respects to spontaneous *Bacillus influenzæ* pneumonia. In experimental *Bacillus influenzæ* infections of either the upper or lower respiratory tract, the influenza bacillus can usually be recovered during the acute stage by culture, either pure or in association with other bacteria. In experimental *Bacillus influenzæ* infections in monkeys characteristic changes occur in the thymus gland—hyperplasia of the follicles, distention of the lymphatic channels, and infiltration of the parenchyma with leucocytes. This enlargement appears to be merely part of a general hyperplasia of the lymphoid structures in the cervical and thoracic regions.—Francis G. Blake and Russell L. Cecil, *Jour. Exp. Med.*, 32, 691, (1920).

✣

Preparation of Collodion Sacs for Use in Bacteriology.—A standardized method is described in detail by which collodion sacs suitable for intraperitoneal incubation and for other bacteriological experiments may be produced in large numbers, sterilized, and handled with convenience and the minimum danger of contamination.—Frederick L. Gates, *Jour. Exp. Med.*, 33, 25, (1921).

✣

A Mechanical Measuring Instrument for Sterile Liquids.—An instrument is described by which aliquot portions of a liquid may be mechanically measured and delivered. It was devised especially for use in immunological experiments, to take the place of a graduated pipette in setting up serum tests. The instrument may be set for any quantity within its capacity and measures sterile liquids without danger of contamination. It may therefore find a wider application in other procedures requiring sterile measurements of small amounts of liquid.—Frederick L. Gates, *Jour. Exp. Med.*, 33, 45, (1921).

✣

Study of the Classification of Meningococci.—The meningococcus, like some other pathogenic species, varies in its agglutination in immune serum, some strains being readily agglutinable while others agglutinate with difficulty in their homologous serum as well as in heterologous serums. The different strains appear to vary also in their action as antigens. In order to secure representative strains, therefore, it was thought necessary to consider the antigenic action as well as the agglutinability of the cultures.—Augustus B. Wadsworth, Ruth Gilbert, and Alice Hutton, *Jour. Exp. Med.*, 33, 99, (1921).

✣

Purification and Concentration of Antigens for Complement Fixation.—Antigens were prepared from the culture filtrates of tubercle bacilli and by extraction of washed and dried organisms with organic and aqueous solvents and from tissues of organs showing tuberculous lesions. A comparison of these preparations by means of the complement fixation test showed that the aqueous extracts were most active antigenically. The antigenic activity of the aqueous preparations and also of the slightly active culture filtrates was increased by means of dialysis and adsorption with serum globulin followed by extraction with alcohol and concentration of the alcoholic extract in vacuo.—Augustus B. Wadsworth and Frank Maltaner, *Jour. Exp. Med.*, 33,

✣

Complement vs. Amboceptor Titrations in the Wassermann Test.—The time of incubation of amboceptor and complement titrations and the time of final incubation before reading the tests, should be the same in any given procedure; the standardization of this incubation period of 15 minutes, is highly desirable. The daily titration of both complement and amboceptor in the Wassermann test, is necessary to a properly balanced hemolytic system.—R. L. Kahn, *Jour. Lab. Clin. Med.*, 6, 153, (1920).

✣

Empyema Containing Diphtheria Bacilli.—The author relates a fatal case observed in a girl, aged 3 years, who presented a purulent discharge from the nose and subsequently developed a left-sided empyema. Bacteriological examination of the pus from the empyema showed streptococci and rods resembling diphtheria bacilli in the smears and diphtheria bacilli in the cultures. On the other hand, the nasal discharge did not show any diphtheria bacilli.—Goldschmidt, *Wien. klin. Woch.*, September 16, 1920; *Brit. Med. Jour.*, No. 3127, (1920).

Milk-Powder Agar for the Determination of Bacteria in Milk.—Formulæ for three agar media are given, two of these media containing skimmed-milk powder with different amounts of peptone and meat extract. The third contains skimmed-milk powder and yeast extract, no peptone or meat extract being used. This may be a distinct advantage if the variation in composition of peptone and meat extract plays an important part in connection with the bacteria count. Any of the skimmed-milk powder media described gives counts very much higher than standard extract agar and the colonies are very much larger. The larger size of the colonies makes the counting process much more accurate. Counts obtained on the powder media with peptone and extract are on the average higher than those obtained on the old standard infusion. On milk-powder yeast agar they may be, in general, slightly lower. With these milk-powder media it is possible to obtain not only a total count, but a count of colonies of strong and weak acid-producing, alkali-forming, inert and peptonizing bacteria. The plates, therefore, give quantitative and qualitative results, at least so far as these groups of bacteria are concerned. The importance of using washed agar in media for bacterial counts will be discussed further in another paper. It is hoped that these media will be given a thorough trial, for it is felt that any one of the three possesses decided advantages over the present standard extract agar.—S. Henry Ayers and Courtland S. Mudge, *Jour. Bact.*, 5, 565 (1920).

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Production by Streptococcus Hemolyticus of an Agglutinin for Red Corpuscles Which Inhibits Hemolysis.—The streptococcus considered appeared to be a typical *Streptococcus hemolyticus* when it was cultivated on blood-agar medium, but it had the peculiar quality of agglutinating instead of laking red blood cells when it was grown in broth medium. It seems possible that, on the blood-agar cultures, agglutination of the corpuscles was prevented by the mechanical factor of the solid medium and that accordingly hemolysis took place as usual. The tests noted suggest that the agglutinin for red blood corpuscles was an exogenous product of the bacterial cell and that hemolysin was probably present, but that its action on corpuscles, for some reason not determined, was inhibited by the agglutinin present. Agglutinin production was a transient quality of this streptococcus strain, since it was present in an appreciable amount for only six weeks.—Katharine M. Howell, *Jour. Inf. Dis.*, 27, 565 (1920).

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A Clinical Method for the Determination of Blood Sugar in Minute Quantities of Blood.—This method is based on Benedict's most recent technique modified for use with the new microcolorimeter. The instrument was developed by Mrs. R. E. Klett, based on the suggestions by Prof. S. R. Benedict. A description and illustration of the apparatus are given. Results obtained with this method have agreed very closely with the figures obtained by simultaneous analyses in which the ordinary methods, requiring 2 cc. of blood, were employed. As this method is simple, quick and accurate, and requires only 0.2 cc. of blood, it is evident that it should prove valuable to the clinician.—Israel S. Kleiner, *Jour. A. M. A.*, 76, 172, (1921).

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The Colloidal Gold Curve in Epidemic Encephalitis.—The authors have been unable to observe any relation between the colloidal gold curves noted and the severity, duration or clinical picture of the disease. However, it does appear that in a large percentage (41%) of cases of epidemic encephalitis chemical changes, whether parenchymatous or meningeal, are present in the central nervous system which produce substances in the spinal fluid able to bring about an abnormal colloidal gold reaction. It has been shown that in other conditions involving changes in the central nervous system alterations in the reaction of colloidal gold to the spinal fluid are analogous to those just described as occurring frequently in epidemic encephalitis. Abnormal colloidal gold reactions are evidence of pathologic changes and not of specific etiology. The diagnosis of etiology by means of the colloidal gold reaction cannot be made without confirming clinical evidence based upon the progress and symptomatology of each case.—Thos. K. Davis and Walter M. Kraus, *Am. Jour. Med. Sciences*, 161, 109, (1921).

Comparison of the Potency of Polyvalent Antimeningococcus Serum. — The potency of a polyvalent antimeningococcus serum, as tested by its agglutination titer, was sacrificed by immunization with a large number of strains of the meningococcus. By immunization with a limited number of representative strains, four or six, carefully selected on account of their antigenic and agglutination properties, the potency was increased three to tenfold without sacrificing the polyvalency; that is, as tested with at least 70 heterologous strains of the meningococcus. The agglutination titer, unfortunately, is not an entirely satisfactory criterion of therapeutic potency, but it is the only practical method available that determines also the polyvalent action of antimeningococcus serum.—Augustus B. Wadsworth, *Jour. Exp. Med.*, 33, 107, (1921).

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Diagnosis of Gonorrhea in the Female by Staining Methods.—When dealing with inflammatory lesions of the lower genital tract, it is advantageous to determine the type of infection present. During the acute stage of the gonococcal infection the diagnosis is generally made without difficulty, as the clinical signs are more or less significant; if doubt exists, film preparations can be depended on. Because of the certainty with which a positive diagnosis by staining methods can be made in the acute stage, and the many difficulties encountered in the chronic stage, it is especially important that the variety of infection present be ascertained during the acute stage. Unfortunately many cases are not seen during the early stages, and a positive diagnosis is therefore arrived at only with difficulty. During the chronic stage the clinical signs are less characteristic than during the acute stage. The examination of film preparations is less satisfactory. The presence of gonococci can be demonstrated by film preparations from every case if a sufficient number of correctly performed examinations are made. A single negative smear examination is without significance. In such a case the chances of demonstrating gonococci are about three or five to one according to the skill of the examiner. Even under the most favorable circumstances, positive film examinations can be obtained in only a relatively small proportion of cases. Unless safeguarded by the Gram stain or one of its modifications, smear examinations are valueless. Even with Gram's stain, errors in diagnosis may occur. Differences in the thickness of the preparations, slight overstaining or understaining, etc., may lead to extremely misleading results. Owing to the many difficulties surrounding this form of diagnosis, the authors believe that unless the test is performed by one experienced in the work, its results are of no value, and are often actually misleading. Clinical evidence is of far greater value than staining methods, even when the latter are performed by an expert. From a practical standpoint all cases should be regarded as of gonococcal origin until proved otherwise. Without desiring to underrate the value of staining methods in diagnosis, the authors nevertheless believe that their usefulness has been considerably overestimated. — Chas. C. Norris and Henry B. Mickelberg, *Jour. A. M. A.*, 76, 164, (1921).

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Isohemagglutination.—A report in regard to the grouping of persons on the basis of isohemagglutination has been rendered unanimously by special committees appointed to consider the matter. The American Association of Immunologists, the Society of American Bacteriologists, and the Association of Pathologists and Bacteriologists were represented. Both the Jansky and Moss classifications appear in text books and manuals. In grouping persons for blood transfusion, both classifications are used, the classification of Moss being the more common, especially in France, England and the United States. The use of different classifications in manuals and text books has caused confusion and misunderstanding in teaching. It is also possible for serious accidents to arise in connection with transfusion of blood through confusion of the two classifications. As further confusion and the possibility of accident may be avoided by the universal use of one classification, the Committee recommends unanimously on the basis of priority that the Jansky classification be adopted. Reprints of this report will be sent by the Journal of the A. M. A. on receipt of four cents in postage. —Anon., *Jour., A. M. A.*, 76, 130, (1921).

On the Basis of Facts

The life of our country is built around its Public Utilities. Our social, industrial and Government activities could not exist today without the continued operation of their indispensable services.

That such services may be extended and developed to be of the greatest use to the greatest number, the Federal Government and practically all the states have appointed Public Service Commissioners as permanent tribunals to regulate public utilities with fairness to all concerned.

Facts as to the past and studies as to the future, the Bell Companies find are essential to the proper management and development of their business. This information is open to study by these Commissioners and through them by the public generally.

The solution of the problem of building up and maintaining the public utilities, which is of the greatest importance to the people of this country, is assured whenever all the facts are known and given their due weight.

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